





THE
FAMILY PHYSICIAN,
OR
EVERY MAN HIS OWN DOCTOR:
IN THREE PARTS.

PART I. CONTAINS THE THEORY
AND PRACTICE OF PHYSIC. PART II. DISEASES
OF WOMEN AND CHILDREN, AND THE BOTANIC PRACTICE.
PART III. DISPENSATORY, ANATOMY, AND
THE PRACTICE OF SURGERY:

TOGETHER WITH
THE HISTORY, CAUSES, SYMPTOMS AND TREATMENT OF
ASIATIC CHOLERA:

A GLOSSARY, EXPLAINING THE MOST DIFFICULT WORDS THAT
OCCUR IN MEDICAL SCIENCE, AND A COPIOUS
INDEX AND APPENDIX.

BY DR. DANIEL H. WHITNEY.

“ I have always thought it a greater happiness to discover a certain method of curing even the slightest disease, than to accumulate the largest fortune: and whoever compasses the former, I esteem not only happier, but wiser and better too.”

SYDENHAM.

NEW-YORK:

SOLD BY N. AND J. WHITE—R. ROBBINS, GENEVA.

1834.

Entered according to the act of Congress, on the twelfth day of September, 1833, by Daniel H. Whitney.

WBA
W6184
1834

INTRODUCTION.

THE object of this book is to treat in a clear and concise manner of the diseases to which the human body is subject: to give their common names, their symptoms, causes, and the means of their prevention and cure.

As all are alike interested in the preservation of life and health, the author flatters himself, in offering this volume to the public, that its contents will be found to be of the greatest importance to every class of community.

To present a work which will answer the above object—one that he who reads may understand; one that should be, in word and in fact, a guide to health; and which will enable every person to prescribe for himself with perfect safety, not in a few simple cases only, but in almost all cases, and to judge of the qualifications of physicians, has induced me to forego every other consideration, and for the benefit of my fellow beings to deliver to them, in *plain English*, a book on the various branches of medical science, in such a style as will enable every person with very little pains to be in possession of all the facts that are of practical importance, as known to the medical faculty.

Every gentleman and every lady in community should be acquainted with those natural and general laws that govern the animal system; and the virtues of the different kinds of medicines, and the quantity of each necessary for a dose; for this simple, yet incontrovertable reason, that every person is best acquainted with his own constitution. And it is believed, that if people would give this subject but a small share of that investigation which they bestow upon others, they would be no more under the necessity of sending for a physician to tell them what kind, and how much medicine they must take at a time, and when necessary, than they are now of sending for the butcher or the baker, to determine the kind and quantity of food they should eat, and the proper time of using it; or of calling on the tailor for instructions for putting on their woollens.

Medicines are naturally divided into classes, (as will be seen by referring to the Dispensatory,) and in each class are many different substances, but all in their particular class have a similar operation; and here it is where physicians have ever found a tower impregnable to the mass of the people, and which they have rendered inaccessible by entrenching it around with difficult terms of their own invention; and thus fortified they impose, not only upon each other, but directly on community.

To impose upon each other, I have seen doctors who were called as counsel, give different medicines of the same class, but were sure to take those the effect of which would be nearest to that which the patient had been taking, and with much stress, dealing out a few more drops or a few less than another physician, and enjoining the strictest attention on the part of the nurses in giving it; sealing the whole by the mysterious name of solution of nitrate of potass, (or salts of nitre.) This medicine, reader, which you took so much of when you had the fever last summer, and to which you looked with so much confidence, and took precisely once an hour, was salt petre dissolved in water. Some physicians use *one* medicine of the class, some *others*, according to their particular notion; hence we may account for a great deal of the difference in the prescription of different physicians. But I am digressing. In the science of medicine, I assure you, that there is no mystery, and that it may all be as easily obtained as any other science.

What reason, therefore, there can be for neglecting the subject of health, while all are vigorously prosecuting every other pursuit which offers profit or pleasure, is unknown to me. And why the science of medicine, to which people look with so much confidence, is not considered a part of every young gentleman's education, I am at a loss to determine. THAT HEALTH, which is of more consequence to every human being than all other earthly considerations put together, is neglected and treated as if a knowledge of the prevention, symptoms and means of cure of diseases, was an impenetrable mystery, is astonishing to the enterprising and philanthropic.

But the necessity of the people being themselves awake to this important subject, must appear obvious to every one; all admitting that any complaint is much easier prevented than cured; and when once the disease is formed, that if taken in the commencement, it is easier cured than when it has been of some days continuance, and that the means then necessary are very simple. If people only understood this matter, one half at least of all the sickness now suffered, and of the expenses now incurred, might be avoided.

I have always been surprised to see people look with so much confidence to the physician, in cases of imminent danger, and place so much stress upon the necessity of his presence, when all that he was doing or could do, was to give an emetic perhaps, or a dose of calomel.

This volume contains a full exposition of medical treatment, and of medical mysteries; and at the same time assures the reader that there is nothing incomprehensible about it, and that the practice of medicine is not of half the consequence that it is generally imagined to be.

INTRODUCTION.

That part of the work which treats of the *theory and practice of physic*, contains not a few recipes for the cure of a few complaints, but the symptoms and treatment as understood and pursued by the most celebrated *physicians*, together with the *WHY'S AND WHEREFORE'S*.

The diseases of women and children are assigned a separate place in this work, because they are not immediately connected with other diseases, and are common to women and children only; whereas, other diseases are common to both sexes and all ages. In this part I have labored to give every thing in as delicate yet plain language as possible. Every one must know it to be difficult to give as full a description of the special sickness of woman as might be done on a few pages, and yet have it a book suitable for general use. But if my readers will but give me the credit of being an honest man, I shall have the pleasure, I hope, of reflecting that I have said enough to do away the unnecessary, indelicate, and abominable practice of calling on men to attend in such cases.

The treatises on anatomy is necessarily brief, but contains all that is essential to the practice of *medicine and surgery*, and philosophically understanding the structure of the human body.

The cases of surgery, most particularly dwelt on, are those which may be performed by any person of ordinary firmness of nerves and composure of mind. Nevertheless, I have given sufficient to enable any man of common judgment to proceed in all cases of emergency correctly, and with full assurance of success.

The dispensatory and materia medica, should be studied with considerable care, as it gives a full description of the medicines in use that are possessed of much efficacy; a description of their virtues, of the quantity of each kind for a dose, and what they are obtained from, (or made of.) With barely the knowledge which may be derived from this part of the work, a careful person might practice medicine for years with as good success as a regular physician. This also directs the preparation of all the valuable compounded medicines, and contains many other valuable receipts. Here those who think that the composition of medicine is at all mysterious, or what is still more surprising and shocking to common sense, that some medicines are made from dead human bodies, will be politely informed of their mistake. And those errors respecting medicine, which physicians have sown for the purpose of keeping people ignorant, will be corrected.

The botanic practice of medicine, will embrace the principal of that branch of medical science as practised by the best *botanists*.

The glossary, will contain an explanation of all the difficult terms used in this work, and most of the *big* words used by medical gentlemen; all of which, I own, do not sound quite so large when told in plain English.

NOW LET ALL TAKE NOTICE. You have not to read this book through to become acquainted with the symptoms of, and proper medicines for any complaint; nor to ascertain the manner of making a phial of paregoric or a box of bilious pills, &c. But turn to the index and there you will find in plain language the object of your search, with reference to the page where you will find a full description of it.

But before concluding, perhaps I should say that you may possibly meet with some physicians, who fearing that this work if circulated will injure the profession, will say this tells but part of the story; and to lessen your confidence in the work and yourselves, they will give medicine under different names. Thus in one instance, they will call the medicine, (we will name but one kind for illustration,) emetic, again tartar, again tartar emetic, again emetic tartar, at another time tartrat of antimony, and again antimonium tartarizatum, and again tartarized antimony, &c., now either or all of these mean nothing more than the common white puke, (tartar emetic.) And they who wish to attach a great deal of mystery to their skill, will mix the medicine with some other substance; in this case it would not be easy for a physician to tell what they give; and as before stated, they will use of a different kind, though of the same class; this tends to keep people ignorant of medicine, and to make them think it is enveloped in mystery; a mystery, however, which wants nothing more than attention to be understood.

And finally, if this work shall be found to answer the end for which it was written, to meliorate the conditions of the human family, it will be the zenith and ultimum of my desires, and I shall reap an ample reward from the consciousness of having successfully performed the task for the benefit of my fellow men.

D. II. W.

PART I.

THEORY AND PRACTICE OF PHYSIC.

CHAPTER I.

OF FEVERS, OR FEBRILE DISEASES.

OF all the morbid affections of which the human body is susceptible, fever is the most important, because the most common, and most fatal disease with which we meet. Some diseases are always accompanied by fever ; others are not always attended by it, but in those which are not, we must be prepared for it, if it should make its appearance. By the presence or absence of fever, all our plans of treatment are regulated ; and by the degree of its violence we are enabled to estimate the danger in each particular case.

When a person is suddenly seized with shiverings or rigors, followed by a hot skin, a quick pulse, thirst, loss of appetite, uneasiness, and a feeling of general langor and lassitude, he is said to have an attack of fever. As before observed, shivering or chilliness is the first symptom of fever, and though sometimes very slight, it is one perhaps that is never wanting. In some cases the rigors or cold chills are so violent as to make the teeth chatter, and the patient complains bitterly of cold. His limbs tremble, the features shrink, the skin is contracted, pale, and rough to the touch. There is generally a pain in the back, head, and limbs, with tightness across the breast, and frequently a sensation is felt as of cold water running down the back.

The duration of the cold stage varies from one hour to two, or even three days. The time when the cold stage makes its appearance ought to be taken notice of and remembered, as marking definitely the time at which the fever commenced, which is of importance to know in order that the proper medicines may be given in time to meet the several stages which we wish to interrupt. The chills subside by degrees, and are succeeded by a heat of the body, much greater than the natural warmth. The color of the skin returns, the cheeks

become flushed, the eyes are suffused, and the features generally appear fuller than in health. This is called the hot stage of fever, which, as in the case of ague, goes off in a few hours, or may continue for many days, as in common continued fever.

After the hot stages have subsided, the sweating stage commences. The breathing becomes free and easy, the pulse is softer, and the urine, after standing a while, deposits a sediment or settling at the bottom, which is generally of a lateritious or brick dust color, though sometimes of a whiteish appearance; and the patient is now left free from pain, but much exhausted, and subject to subsequent returns of all the symptoms at indefinite periods, of uncertain continuance and severity.

Although the above are only the most prominent symptoms of fever, I have thought them sufficient at present, as I shall have occasion to notice the more minute derangements of the animal functions, when treating of individual diseases. But here permit me to say, that the symptoms vary in the same fever on different individuals, and on the same persons in different places and under different circumstances. You will ask then, perhaps, will it not be difficult to know how to proceed under so many different circumstances? I answer, there is nothing more easy, if we only remember one thing, and that is, that *the same symptoms, wherever we find them, always require the very same treatment*. You must therefore make it an invariable rule never to prescribe for a name, but to watch the symptoms, to treat the symptoms, and nothing but the symptoms.

The first and most natural division of pyrexia, or fever, is into idiopathic and symptomatic. A fever sometimes arises spontaneously, without any obvious cause. It is then called *idiopathic* fever. Fever again is sometimes occasioned by an injury, or by some other local affection, such as swelling and redness of the throat, acute pain in the side, &c.; it is then called *symptomatic* fever.

The divisions of fever might be multiplied to a great extent; but all this would amount to just nothing at all in a practical point of view, and I shall therefore only make three divisions of idiopathic fever, viz: intermittent, continued, and eruptive.

Intermittent fever is that which comes on in regular fits or

paroxysms, with a complete intermission of fever after the fit goes off. This is generally called the *ague and fever*.

Continued fever is that which has no intermission, and frequently continues from seven to twenty-one days.

Eruptive fever is that which is accompanied by an eruption, such as small pox, chicken pox, cow pox, measles, and scarlet fever.

REMITTENT FEVER, OR AGUE AND FEVER.

A paroxysm, or fit of the ague and fever, is divided into the *cold*, the *hot*, and the *sweating* stages. The cold stage comes on (as before alluded to) with rigors, which are so violent as to make the patient complain of cold, the teeth chatter, the whole frame is shaken; the blood retreats from the surface of the body, leaving the skin rough; all the external features are lessened, and there is often violent pain in the head and back. After a few hours this subsides, and the *hot* stage supervenes attended with sickness at the stomach, sometimes vomiting, scanty and high colored urine, a hurried breathing, considerable headach, throbbing of the temples, confusion of thought, amounting sometimes to delirium. At length a moisture begins to break out on the face and neck, which soon extends over the whole body, the pulse comes down to its natural standard, the heat, headache, and nausea soon subside, the mind becomes clear and calm, the fever goes off entirely, and the system is, in a great measure, restored to its healthy action.

The duration of the paroxysm varies, but upon an average it lasts about six or eight hours. After a certain interval, the same paroxysm returns, accompanied by the same symptoms, and the time that intervenes between the paroxysms is called the type of the fever. *Quotidian* signifies *every day*; and so when the paroxysm comes on every day, it is therefore called the quotidian type. *Tertian* signifies *every third day*; and so when it comes on every third day, it is called the tertian type. *Quartan* signifies *every fourth day*; and consequently, whenever it comes on every fourth day, it is then called the quartan type. What the causes may be that produces these different types of the same disease, is not well known; but this much is certain, that climate and season, and peculiarity of constitution have a great influence over them in some way or other, it is well known; for instance, that agues in the spring are most frequently of the tertian

type, and that those of the quartan type most generally prevail in autumn. The quartan ague is considered more difficult to cure than any other. In the course of the disease one type frequently changes into another; the quotidian into the tertian, the tertian into the quartan, &c. The ague and fever sometimes continues a long time in cold countries, without producing any material injury; but not so in hot climates—there, the continuance of ague in a very short time induces inflammatory affections of the internal parts, especially of the liver and spleen, and this affection of the latter, produces that which is known by the name of ague cakes.

PROGNOSIS, or *foretelling the event of any disease*, is always a matter of more sound than substance; and although the season and climate in which the ague appears, together with the previous duration of the disease, may assist us in forming some idea of the danger, it is impossible to foretell the certain event of this or of any other disease. In this country, in England, and Holland, ague and fever is not generally a dangerous disease, while in Sierra Leone, and along the neighboring coasts, it is said that it cannot be exceeded in malignity by any known disorder. If the ague has been present for any considerable length of time, it will be found difficult to remove, liable to return, and will tend materially to injure the constitution.

CAUSES.

Exhalations from soil and marshes, called by the physicians marsh Miasmata, is the great occasional cause of ague. The manner in which marsh miasmata occasions the ague is certainly very obscure, but the observations of the most learned and celebrated have placed this as a cause beyond doubt. And though the inhabitants of low and marshy grounds are generally affected with intermittents, yet marsh miasmata exerts a powerful influence over every species of fever, and the people residing about such places are generally short lived. The means of obviating this difficulty is to drain and cultivate the lands, to clear out all the timbers and old vegetable substances, as it is from these, after being covered a part of the year with water, that the poison exhales when exposed to the sun, and arising with the aqueous or watery vapors, load the atmosphere with disease and death.

New countries are always subject to the ague, which subsides, however, upon the clearing up and cultivation of the

soil, by which the whole surface is exposed to the action of pure air. Persons should choose if possible for their places of residence, the most elevated points of the town or country, and if obliged to pass their time in low situations, should occupy the loftiest room of the building, keeping the windows shut which front the marsh.

Certain states of the air favor the disposition of the body to ague, and rivet it in the constitution by inducing a tendency to relapse from very slight causes, such as exposure to cold, a moist state of the atmosphere, the prevalence of an easterly wind, and exposure to the night; the latter of which should be carefully avoided. Weakness of body, unwholesome diet, long watching, residing in houses the floors of which lie near the ground, is not only productive of agues, but often of the most malignant fevers.

We are far from being acquainted with all the causes that may have any agency in producing intermittent or ague and fever; but the marsh miasmata before mentioned, arising from the combination of earth and moisture with decayed vegetable matter, is much the most common and the most important.

TREATMENT.

It has been questioned whether agues ought to be cured: many people suppose that there is something salutary in the ague and fever. But as it frequently becomes complicated with other diseases by neglecting to cure it in time, I would earnestly advise every one who has it, to get rid of it as soon as may be, for as no possible danger can result from curing the disease; it is better to throw it off at once than to risk the consequences of neglecting it. And notwithstanding it is a fact, that physicians are entirely unacquainted with the *manner* in which marsh miasmata produce agues; and although they are equally ignorant of the *modus operandi*, or practical manner in which *any* medicine acts in curing the ague, still, their ignorance of this matter does not lessen the value of such medicines as we know from experience *does* cure it.

In the treatment of agues, as in all other complaints, we must vary our means with the existing circumstances; and though certain it is that most cases are within the control of art, yet some baffle every effort to effect a cure. But such generally wear themselves out in a few weeks. We should use all our means, however, to cure it, as the local affections which it creates are dangerous, and I have often noticed that

if such persons are attacked with fever within the course of a few months after the fits leave them, they almost invariably *die*.

As it is not possible to stop the fit after it has once commenced, the object must be to make it shorter and less violent by hastening the different stages. When the cold stage is on, therefore, we should endeavor to cut it short and bring on the hot stage by giving stimulating and warm drinks, and by putting the feet into hot water. The patient should be put into a warm bed with bottles filled with hot water, or with bricks having been boiled in hot water, wrapped up in cloths and applied to the body. Or the patient may be rubbed with a brush until a glow of warmth is excited on the skin; and just before the cold stage is expected to commence, the bowels and stomach should be cleansed either by a cathartic or a gentle emetic. If an emetic should be given, (which is generally to be preferred,) take of emetic tartar from 6 to 10 grains for a grown person, which is about the same as one eighth part of a common teaspoonful, dissolve it in a tea cupful of warm water, and let the patient drink four table-spoonfuls at once. If this should not operate as a puke in 15 or 20 minutes, take one table-spoonful of the same every ten minutes until it does operate. Or you might mix half the above mentioned quantity of emetic tartar, with half a teaspoonful ipecac; then put it into half a tea-cupful of warm water, and drink half at once. If it does not operate as a puke in fifteen or twenty minutes, take half the remainder, and if it should be necessary take the rest of it. Or even ipecac alone might answer the purpose, though it is not so powerful as emetic tartar, or that and ipecac mixed together. But if you should choose to use ipecac alone, take as much as a tea-spoonful in warm tea or water, and repeat the dose once in fifteen or twenty minutes until it operates as an emetic, drinking plenty of warm water or of warm chammomile tea, in order to facilitate the operation.

If a cathartic or physic should be given, instead of the emetic or puke, it might be better perhaps to give it about two hours before the cold stage is expected. A smart dose of calomel and castor oil will answer this purpose well. Not less than ten nor more than twenty grains weight of calomel, (about half as much in bulk as you would give of emetic tartar for a puke,) should be mixed up well with a table-spoonful of castor oil, and after taking it the mouth should be well

rinsed with warm water ; then avoid taking cold, and abstain from cold drinks, and there will be no danger of having a sore mouth. If it should not operate in two or three hours, take a second dose ; if it should operate too much, take a few drops of laudanum or paregoric, say ten or fifteen drops, or more if necessary. If the calomel and oil should happen to be vomited up soon after taking, it will be best then to take something to settle the stomach, a few drops of essence of peppermint and laudanum mixed with water, or a little of the oil of cinnamon dropped on a lump of sugar, mashed up and mixed with water or spirits in a table-spoon may be given, and as soon as the stomach becomes settled; try the calomel and oil again, and if the patient cannot keep it down, why then he must be contented to take a puke instead of the physic. If the patient has a strong dislike to oil, a tea-spoonful of jalap and a common dose of calomel, mixed together in molasses, may be given instead of the oil ; or the jalap may be administered without the calomel, increasing the dose to a tea-spoonful and a half perhaps, and if it does not operate in two or three hours repeat the dose as before directed.

As soon as the *hot stage* comes on, it will be proper to discontinue the warm drinks and stimulants, and make use of cold and sour drinks, such as lemonade; or elixir of vitriol, or barley water with vinegar, or vinegar whey, or dissolve about a drachm of nitre (the eight part of an ounce,) in a pint of water or flaxseed tea, and take a tea-spoonful of it every hour. Or warm boneset tea may be taken ; or dissolve a little emetic tartar in cold water, making it weaker than you would for a puke, and take a tea-spoonful once an hour, just so as to produce a slight nausea at the stomach, but not so much as to induce vomiting. Or one fourth of a tea-spoonful of ipecac may be mixed with water and given in the same way, for the same purpose ; that is, to reduce the fever and create a moisture on the skin ; and if the fever runs very high, attended with severe pain and a white tongue, a small bleeding will be of service.

When the *sweating stage* comes on you may discontinue the use of the foregoing means, and omit giving any medicine until it goes off, and a perfect intermission takes place. During the intermission, the object is now to prevent the return of the paroxysm or fit by giving tone or strength to the system. For this purpose it will be proper to steep an ounce of Peruvian bark in a pint of water, and take a table-spoonful of it

once an hour ; or the bark may be taken without being steeped, by mixing it up with molasses or milk, or with any thing you please, and take about a table-spoonful every hour ; and if it does not sit well on the stomach, add a few drops of the essence of cinnamon or peppermint to it, or what is better, a few drops of laudanum ; or quinine may be given instead of the bark. Quinine, or rather, the sulphate of quinine, is obtained from Peruvian bark by a chemical process ; it possesses the same strengthening properties as the bark, and is generally considered better, because it requires less for a dose and agrees better with the stomach. The best way to give quinine is to fill a two ounce phial with water, and drop into it fifteen or twenty drops of sulphuric acid, (oil of vitriol,) or enough at least to make the water as sour as vinegar, then put something like half a tea-spoonful of quinine into the phial, shake it until the quinine is dissolved, and then give a tea-spoonful of it in a table-spoonful of water once an hour until the time for the next fit to come on shall have passed over. If, however, the paroxysm *should* return at the expected time, notwithstanding the means used here to prevent it, you may then discontinue the bark or quinine, until the fit is over. Or you may continue the use of it through the cold stages, taking hot drinks at the same time, putting the feet into hot water, &c. &c., the same as before directed for treating the cold stages. But as soon as the hot stages comes on you must discontinue the bark, or quinine, and then proceed according to the directions previously given for treating the hot stages.

SUBSTITUTES FOR THE BARK.

The bark of the broad leafed willow is sometimes given in the ague, as a substitute for Peruvian bark. One ounce and a half of the dried and pounded bark should be infused in one quart of water for six hours, then boil it over a gentle fire for a quarter of an hour, and strain for use ; half a gill may be given as a dose five or six times a day during the intermission. The barks of our common willows, which are bitter and astringent, have been used with success in the same disease. And I consider the bark of the common dogwood (Cornus Florida,) to be but little, if any, inferior to the Peruvian bark, and it may be given in the same manner for the ague and fever.

Arsenic is now considered to be a valuable medicine in

the ague. The arsenical solution* is given in the intermission. The dose is five drops, gradually increased to ten or twelve, several times in the day. This will sometimes produce vomiting, in which case it will be proper to suspend its use, and give a cathartic of rhubarb. As a substitute for arsenic, the sulphate of zinc, (white vitriol,) in doses of one or two grains combined with a little opium, may be given two or three times a day during the intermission. We must bear in mind, however, that while using these medicines, it is important to give a gentle cathartic, such as rhubarb, or castor oil, or salts, every few days, in order to keep the stomach and bowels regular, and to carry off the medicine which the patient is taking; and that after the fever is entirely interrupted, we should continue the medicine for several days to prevent its return.

The patient will frequently experience benefit from taking, two or three times a day, a small quantity of gum myrrh and Virginia snake root in brandy. And when all other means fail, as they sometimes do, I generally had good success in giving two or three grains of calomel, mixed with about the same quantity of quinine, three or four times a day, when there was no fever, taking care to give a dose of castor oil or epsom salts just before the next paroxysm was expected, in order to carry off the calomel and quinine out of the system.

The different remedies and cures for ague and fever, are almost as numerous as the number of persons who have attempted to cure it. The plan which I have marked out, however, is the most relied on by physicians, and is generally the most successful.

There are some practitioners who are in the habit of disguising their medicine under as many different forms as their ingenuity can devise, in order to prevent the patient from knowing what the medicine is, and they call it by some pretty name or other, such as tasteless ague drops, the ague pills, the aromatic pills, &c. All these are preparations of arsenic and quinine, and if any of them be given during the hot stage, they increase and prolong the fever, and in many cases endanger the life of the patient; but as soon as the patient has gone through the cold, the hot, and the sweating stages, these medicines might then be given with perfect safety.

* See the dispensatory.

CHAPTER II.

BILIOUS OR REMITTENT FEVER.

CAUSES.

REMITTENTS are produced from the same causes that intermittents are, and differ from intermittents only in being more violent. Intemperance, especially in the use of ardent spirits, produces fevers of the most malignant form.

SYMPTOMS.

In remittent fever there is a remission or abatement, but the fever does not go entirely off as remittent; this is the characteristic difference between the two. It commences with coldness, shivering, violent pains in the head and back, dejection of spirits, sickness at the stomach, giddiness, loss of strength and difficulty of breathing. This is followed by heat, the pulse which was small in the cold stage becomes full and quick, all the symptoms increase in violence, the sickness of the stomach frequently amounting to full vomiting. Soon these symptoms abate, the skin becomes moist, and the patient feels almost well; but he is soon disappointed by another attack, which comes on with increased violence, and if not checked, great restlessness, delirium, offensive discharges, twitchings of the tendons, profuse clammy sweats, and convulsions frequently come on, which soon terminate in death.

TREATMENT.

In the treatment of this fever, our object is to bring the remission to an intermission; for which, on the commencement, if there is much pain in the head, with a hard, quick pulse, bleeding will be useful, and may be repeated in quantities of from half a pint to a pint, according to circumstances, once in ten or twelve hours, until the urgent symptoms abate. But the most important is, to evacuate the bowels and stomach of their impure contents; first take of tartar emetic ten grains, or about one fourth of a tea-spoonful, put into a tea-cup of hot water, give to a grown (adult) person four table-spoonfuls, wait twenty minutes, if it does not operate give one table-spoonful every ten minutes until it produces full vomiting; when it begins to operate the patient should drink

freely of warm water, this favors the operation of the puke and renders it much easier. In the same manner may also be given ipecac in dose of twenty-five or thirty grains, or a tea-spoonful and a half; or half the emetic tartar, and half the ipecac mixed together and taken in the same manner. In managing in this manner, (giving a part at a time,) the possibility of danger is avoided. These are the emetics in most common use, but any of those mentioned under the head of emetics may be used.

When an emetic or cathartic operates too excessively, give a small pill of opium half as large as a field pea, and repeat once an hour until it checks the operation; or give fifteen or thirty drops paragoric or laudanum. If the puke does not operate as physic, it should be followed in a few hours by a cathartic, in common dose, bilious pills, calomel, jallap, oilum ricini, (caster oil,) or any other that is convenient.

Or where an emetic cannot be given, we must give active cathartics; calomel from five to ten grains with fifteen or twenty grains of jallap; or give the calomel with about a half dose of any other physic; or give jallap or any other physic without the calomel. When the emetic has operated smartly, it will not be proper to repeat it on the recurrence of the very next paroxysm, unless the symptoms are very violent, but should then content ourselves with an active cathartic. When the first passages have been well evacuated, and the fever yet comes on as usual in relation to time and stage, give in the hot stage a table-spoonful of salt-petre, (called by the doctor, solution of salts of nitre, or nitrate of potass,) prepared by putting a tea-spoonful into a tea-cup of cold water, give once an hour, this is a refrigerent (cooling); or once an hour in a little cold water, elm or flax-seed tea, give a tea-spoonful of spirits of nitre, or Dover's powders, (which see) this promotes perspiration by causing the blood to flow to the surface of the body, and always is followed by an abatement of the symptoms. Also, the saline mixture, spirits mindererus, antimonial powders; or what is just as well, put half a tea-spoonful of antimony (tartar emetic,) in a tea-cupful of cold water, give a tea-spoonful once an hour, until the fever abates; or calomel one grain, antimony two grains, once in two hours, or ipecac three grains; little soda or pearl ash, a little camphor, one half grain opium.

The warm bath is highly useful, and when it cannot be used for want of a proper vessel, the feet should be put in warm water once a day.

The cold affusion is best, but must be used only when the fever is at its height. The most convenient way of applying cold, is by sponging the body with cold water or vinegar and water; this should never be neglected in any case of fever, especially in hot weather and hot climates.

Blisters must be applied, in cases of violent pain, as near the part affected as may be. In delirium or great pain in the head, apply them to the arms, back of the neck, or between the shoulders.

When the fever goes off with a perspiration and the patient is relieved of all the violent symptoms, the pulse is soft and regular, the heat of skin and the flush of the face have passed off we have an intermission, and must give tonics; cinchona (Jesuits, or Peruvian bark,) in dose of half a table-spoonful once an hour, mixed in any thing convenient; or steep one ounce of the bark in a pint of boiling water, give of this a table-spoonful once an hour with the same quantity of port wine; or sulphate of quinine three grains, or about one sixteenth of a tea-spoonful, in a little wine once an hour, or prepare the quinine as directed in ague and fever. The different kinds of tonics mentioned in this work may be used, if any particular kind disagrees with the stomach add a few drops of laudanum or change it. If any of these produce fever you must lessen the dose, and if yet the fever is increased suspend entirely the use of them, and give an emetic or cathartice, for the stomach and bowels are not sufficiently cleansed. If the patient becomes suddenly faint, extremely weak, deranged, sinking of the pulse, twitching of the tendons, the tongue furred and black, it approaches to typhus, and wine and bark, quinine, columbo, &c., with ether or hartshorn in a dose of a tea-spoonful once an hour; castor five or ten grains to allay the irritability, or a small pill of opium; apply blisters to the arms and legs, and sinapisms of mustard, onions, &c. to the feet and palms of the hands.

To allay the excessive vomiting which sometimes attends the commencement of this fever, we must apply flannels wrung out of hot water, vinegar or spirits, or a mustard poultice, or blister over the region of the stomach; at the same time we are directed by authors to give infusion of columbo, opium, new milk, sweet oil and molasses, lime water, soda, magnesia, &c.; but whatever is given with a view to check it must be in as small quantities as possible, or it will overload the stomach and increase the vomiting.

The food and drink must be adapted in general to the taste of the patient; the lightest and most nourishing will of course be the best, such as rice, arrow root, panado, vermicella, gruel, mush, custards, roasted apples, and mild kinds of ripe fruits. The patient must be kept clean, and every thing about him so.

The only means which we can use by way of prevention, are to avoid exciting causes, by living temperately, or going to a warm climate, and taking every other night two or three grains of calomel or a small dose of rhubarb, or any gentle cathartic; if there is fullness of habit to have a few ounces of blood taken. In all situations and in all places to shun hard drinking; avoid cold moist air, all sudden exposures to cold, and observe the utmost cleanliness in our persons and dwellings.

Different circumstances will of course arise to alter the treatment in some instances, and we must therefore vary our treatment as the symptoms indicate.*

CHAPTER III.

OF THE YELLOW FEVER.

THIS fever has mostly prevailed in the West Indies, on the shores of North America, and in the southern parts of Spain. It is considered among the endemics (peculiar to) of hot climates, and has excited attention from its having prevailed epidemically (generally) in those countries with unparalleled mortality at particular seasons.

SYMPTOMS.

The most common form of yellow fever commences with languor and rigors, sometimes dejection of countenance, an aversion to motion, and at sometimes there is an appearance of intoxication; the head aches, the face is flushed, the eyes appear dull, glassy, suffused, and protruded; the tongue at first is fured and moist, which by degrees becomes dry and black, sometimes of a fiery red color; slight heat of the skin; the patient is sometimes very restless, and sometimes lies

* See general treatment of fever.

almost in an insensible state ; great irritability of the stomach comes on, the matter thrown up is generally slimy and tasteless, very seldom bile.

As the disease advances this assumes the appearance of coffee grounds ; this is called the black vomit, but is not always present.

Symptoms in its most violent form. The attack is frequently without chill, with violent pain in the head, back and limbs, prostration of strength, vomiting, eyes red, suffused, face tumid, the patient speaks thick like an intoxicated man ; the skin is hot and dry, severe pain in the forehead and bottoms of the orbits of the eyes, and great heat at the pit of the stomach, large drops of sweat stand on the face, the tongue generally moist and trembling.

High and fierce delirium comes on about the second day, the patient requires two or three persons to hold him in bed ; the eyes look as if they would start from their sockets, and roll with a fierce and ghastly expression. These symptoms soon subside and the senses return and the patient is easy, but soon to experience a recurrence of the above symptoms, frequently with syncope, faintings, or convulsions, which are the last and fatal symptoms, and death closes the tragic scene on the third or fourth day from the commencement. In the common form of this fever the duration is from five to seven days, and in this form death is sometimes preceded by low muttering delirium, at other times the patient sinks exhausted into the arms of death with the mind unimpaired. If the patient passes the sixth day without the occurrence of the black vomit or difficulty of making water, the chance is favorable. Relapses in this fever are not common.

The symptom from which this disease takes its name, yellowness of the skin, is not a necessary characteristic of the complaint, for many cases run through their whole course without exhibiting it.

TREATMENT.

The fact is, that no treatment in yellow fever has been discovered on which we can place much confidence. The course recommended by the most celebrated physicians I subjoin.

To remove the sickness at the stomach, give copious draught, of warm water or camomile tea, or strong tea of bone set (eupatorium perfoliatum,) until it produce vomiting. If the sickness continues, give frequently a table-spoonfull or two

of lime water and milk, or twenty drops of spirits of turpentine on sugar once in two hours, or ten grains of carbonate of potash with a tea-spoonful of vinegar, small doses of laudanum, eight or ten drops, with a little essence of peppermint; at the same time apply a blister to the pit of the stomach, or a warm mustard seed or onion poultice to the same part, and strong drafts to the soles of the feet and palms of the hands.

Charcoal finely powdered may be given in a dose of a tea-spoonful once an hour, this is said to have succeeded in cases where every other means proved unavailing. Sugar of lead (sacharum saturni or acetate of lead,) is recommended in dose from half to two grains, once in four hours. But it appears to me that a large dose of calomel and oil, or a dose of croton oil given half drop every five minutes until it operates, would sooner allay the irritability of the stomach, by removing the morbid matter which produced the disposition to vomit. Bleeding is said to be useful if used on the first or second day of the disease, in cases of affection of the head, delirium or violent pain, especially in persons of full habit of body, and natives of northern latitudes, and large bleedings are preferable to small ones; persons of slender constitutions will not bear large bleeding, it hastens the typhoid stage and greatly endangers life.

The blood is no guide to our treatment, as it exhibits every variety of appearance. Bleeding if employed should be always practised in the hot stage. Some give an emetic in the first stage and follow it by bleeding; an emetic every one knows determines to the surface of the body and produces perspiration and external heat, and no doubt is the best medicine that can be given in the commencement, but I am not ready to admit that this should be followed by bleeding. After bleeding or an emetic, the bowels must be freely opened by some gentle purgative, as calomel, rhubarb, aloes, jalap, scammony, colocynth, senna, calcined magnesia; these produce colored and natural discharges, and are the most advisable kinds of physic; they may be given in their usual doses, mixed in molasses or any thing convenient.

Salivation frequently cures the disease; it may be effected by giving small doses frequently, combined with opium, or by rubbing in mercurial ointment, one scruple every three hours until it produces its effect, rub it on the sides, arm-pits and groins. The quickest way of producing salivation is to take spirits of ammonia two drachms or a table-spoonful, six

ounces of distilled, rain or brook water, and four ounces of calomel mix, it should then be strained off and the powder, when dried, must be thrown on a hot shovel and covered with a tin funnel and the vapor inhaled (breathed) into the lungs.

Diaphoretics may be used when the skin is hot and dry, but generally are of little use. The urgent headache may be relieved by cold applications to the head, and blisters. When the powers of life begin to fail, stimulants and cordials must be used; sour drinks must be used as water and elixir vitriol, sulphuric or nitric acid, cream of tartar, &c. Strict attention must be paid to diet, and the patient suffered to eat nothing but what is nourishing and easy of digestion.

Yellow fever is contagious. Its latent period, or that time which elapses from exposure to its showing itself, is from two to ten days. And although a person who has once had the yellow fever, is not very likely to take it a second time, yet there are instances of the same person having had it several times.

Strangers should observe the strictest temperance, and on visiting an infected country should take a gentle cathartic; if of a full habit of body a small bleeding will be proper, and a tea-spoonful of peruvian bark in a table-spoonful of wine thrice a day will act as a preventative; he should look out for his residence a dwelling in the highest part of the district, and occupy the loftiest room in the building and keep the windows closed which front the water, low grounds, or marsh. Exposures to cold, wet and evening air must be carefully avoided.

These precautions should be strictly attended to by soldiers when marching, and their marches should be short, and their quarters on high airy grounds, or if on low marshy grounds it should be drained by ditching.

Mercury taken so as to make the mouth a little sore, is said to be an excellent preventative. Yet all means hitherto employed in yellow fever are to be looked upon as doubtful.

MILIARY FEVER.

SYMPTOMS.

A roughness produced by cold is first observed on the skin, and soon after this large numbers of red pustules or pimples appear, which are sometimes in clusters and sometimes dis-

tinct or separate, and so prominent as to be easily felt, but not always to be seen, for when there is not much inflammation the color of them is the same as that of the skin. In ten or twelve hours these pustules are changed into a whey colored vesicle or blister, which soon becomes white. Sometimes the fluid or watery humor which is in them turns yellow, and in two or three days they fall off in scales. This fluid is acrid or sharp, and of a bad smell. They are first seen on the neck and breast, and they appear and disappear frequently in the course of the disease.

Before the eruption appears there is frequently pricking or itching in the skin, numbness of the fingers and toes, delirium, pain in the head, ringing in the ears, sore eyes, aphthae or sore mouth, heat in the back, epilepsy, and finally a profuse sweat, which if not checked, will cause the eruption to continue for many days.

When the eruption steadily continues full and red, with moderate sweat, free breathing, without much debility, the case is favorable, otherwise it is unfavorable.

CAUSES.

Excessive evacuations of any kind, bad diet, a moist and marshy air, intemperance, and offending matters in the stomach produce it. In spring it is most common, less in autumn, still less in summer, and least in winter; the old, and the very young, and women, are the classes most liable to it.

TREATMENT.

When there is much fever and the pustules are red and inflamed, bleed, give a dose of some kind of physic, and cold applications are good. But if there is much debility, which is most generally the case, and the pustules are white and relaxed, strengthening remedies are proper, such as sulphuric acid diluted with water, Peruvian bark, &c. If the stomach is oppressed, with headache, nausea, griping, or swelling of the bowels, an emetic will then be necessary. If the eruption strikes in, and the sweating stops suddenly, cordials and stimulating medicines are proper, such as brandy, ether, harts-horn, camphor, &c. A smart dose of physic in the beginning, especially when women in child bed are attacked with it, will generally throw off the disease at once.

CHAPTER IV.

OF CONTINUED FEVER.

SOME authors have divided continued fever into three kinds, while others have made out as many as twenty-five divisions of it. Many of these arbitrary divisions are now considered unnecessary ; and we should remember that none of them are intended to direct the method of cure, but merely to enable us the more easily to remember the different symptoms that may occur ; for it is neither names nor divisions of names that are to be treated, but symptoms, and them alone. A continued fever will sometimes show the symptoms of strong inflammation during the whole of its course ; it is then called synocha, or inflammatory fever. Sometimes it is attended with depressed nervous energy or loss of strength, together with symptoms of putrefaction ; it is then called nervous, putrid, or typhus fever. Sometimes the beginning of the course will be marked with the symptoms of inflammatory fever, and the latter part of it with the symptoms of typhus ; it is then called synochus or mixed fever, or common continued fever. This division of continued fever will perhaps be as good as any other, remembering however that the same symptoms wherever we find them always require the same treatment.

The symptoms of continued fever are modified by the *climate*, the *season*, the *state of the air*, and the *constitution and habit of body*. For instance, in hot climates the synocha or inflammatory type of continued fever is the most prevalent ; whereas, in cold or temperate climates the nervous or typhoid form is most common. With regard to *season*, the inflammatory fever prevails most in spring and summer, typhus in autumn and winter. The fevers of warm climates or warm seasons are apt to become complicated with disease of the liver and spleen, and those of cold climates with complaints of the lungs. A moist marshy or impure air is more likely to induce nervous than inflammatory fever ; and a dry, cold atmosphere will sooner produce the inflammatory than the nervous fever. Inhabitants of low countries, from the influence of habit, may be almost proof against the nervous diseases of their own country, when at the same time, by removing to a dry hilly country they become more liable to in-

inflammatory fevers than others. And so it is that our northern people become sick on going to the south ; and the southern on coming to the north. With respect to *constitution and habit of body*, the period of youth, the sanguine or hot temperament, a full diet of animal food, with wine or distilled spirits, have a natural tendency to induce fever to be inflammatory. On the other hand, weakness of body, and flaccidity or looseness of fibre, whether it be the effect of original formation or of previous disease, or of hard labor, or of long watchings, or of deficient nourishment, always conduce to the low and typhoid form of fever ; and it is therefore in individuals of this habit of body that the purest cases of typhus fever are found.

SYMPTOMS OF INFLAMMATORY FEVER.

The most violent form of synocha or inflammatory fever is not often met with in this country, but is generally found in hot climates. Yet even in cold countries when the weather is dry, and in very plethoric and strong constitutions, the violence of the symptoms are sometimes very nearly the same. The attack, which is generally very sudden, commences with excessive prostration of strength and shivering, which are soon succeeded by a violent heat of the skin, pain in the back, headache, giddiness, and general uneasiness. The headache is very acute, the eyes are suffused and cannot bear the light ; the face is full and red, and the whole countenance flushed ; the arteries of the head beat violently. There is often bleeding at the nose, sometimes delirium, and the tongue becomes rapidly coated with a thick fur ; nausea or sickness at the stomach, vomiting of bile, great thirst, and a costive state of the bowels prevail. The pulse varies from one hundred to one hundred and twenty in a minute, strong, full and regular. Sometimes the pulse is weak and depressed, but rises immediately on bleeding. The breathing is quick, the skin very hot and dry, and the urine scanty and high colored. If suffered to run its course it may prove fatal in less than twenty-four hours.

CAUSES.

In general this fever is produced by excessive cold or heat suddenly applied, where the system is greatly excited by exercise, spirituous liquors, violent passions, robust habit, ani-

mal food, and a residence in a dry air. In short, all the causes before mentioned which excite fever have their effect.

TREATMENT OF INFLAMMATORY FEVER.

The patient is to be immediately bled until he begins to feel faint. A powerful emetic should then be administered, after which, if the inflammatory symptoms return, it may be necessary to repeat the bleeding even within a few hours after the first; and to allay the burning heat of the skin the body may be sponged with cold water. It will be proper likewise to give a brisk cathartic, unless the emetic should operate as physic, and even if it should operate so, cathartics must not be neglected, especially whenever the fever begins to rise. After bleeding, puking and purging, sudorific or sweating medicines are to be used when the skin is hot and dry, and discontinued as the feverish symptoms go off and the skin becomes moist. Six grains of emetic tartar dissolved in a quart of water, is a very good sudorific; a wine glass full may be taken once in four hours, or half that quantity once in two hours, less or more, as the patient can bear it without puking. Cooling drinks likewise, such as nitre or cremor tartar dissolved in water, may be given once an hour between the times of taking the sudorific. After the system is properly reduced by bleeding, &c., if there should be a determination of blood to the head, and a stupor or constant inclination to sleep should come on, a blister must be applied to each arm, between the elbow and shoulder, or a blister on the back of the neck; and if the pain should now determine to any other part of the body, a blister is to be applied to it. As soon as the general fever goes off, and the skin continues moist, the tongue becomes clean, and there is no very particular determination of pain to any part of the body the patient may begin to take strengthening or tonic medicines, such as Peruvian bark, or quinine, or seneka snake root, &c.

CHAPTER V.

TYPHUS, OR NERVOUS FEVER.

SYMPTOMS.

THE patient complains of chilliness alternated with sudden flushes of heat, he is listless and uneasy, and if he sleeps he

groans and starts, and rises without being refreshed ; he complains of dull aching pain in the head and limbs, with soreness of the flesh, oppression in breathing, nausea and want of appetite ; increasing for several days, the patient being well enough to be up without having power to attend to business. The disease is then fairly set in, increasing in the evening and declining in the morning. The tremor or trembling observed on putting out the tongue or raising the hand is one of the most common symptoms of this fever. As the fever advances these symptoms become more intense, attended with confusion of the head, nausea, a sense of weakness, dejection of spirits, and frequent sighing without knowing the cause. The pulse varies during the day, sometimes a little quicker than usual, at other times about the natural standard. Sometimes the disease sets in more violently with great pains in the back and limbs, weariness, a burning pain in the stomach, vomiting, vertigo, dimness of sight, and numbness of the extremities. The hands now tremble so as to prevent guiding them to his mouth ; the fingers are in constant motion ; tongue becomes dry, of a dark color, and trembles on attempting to put it out. Stupor finally comes on, involuntary discharge of excrement, hiccough, twitching of the tendons, cold clammy sweats, and death.

CAUSES.

It is occasioned by impure air, and putrid effluvia from vegetable and animal matter. We are therefore, not surprised to find it often originate in gaols, ships, and dirty dwellings, when numbers are crowded together, and when it is not possible to have sufficient ventilation. It is a contagious disease, and although human contagion, and the effluvia above mentioned are the most frequent and active causes of this disease, yet they cannot be considered the only ones, for we sometimes meet with it in a country neighborhood, where it cannot be traced either to contagion, or to any effluvia arising from animal matter. It is evident therefore that uncleanness, a moist atmosphere, much fatigue, depressing passions, a poor diet, excessive study, and whatever weakens the nervous system, may be enumerated among the causes.

TREATMENT.

In some cases where the disease sets in very violently, bleeding may be cautiously used at first ; but the safest way

is to produce a smart evacuation of the stomach and bowels. For this purpose 20 or 30 grains of ipecacuanha, or half the ipecac with 4 or 5 grains of tartar emetic may be dissolved in a pint or more of weak camomile tea, of which the patient may drink a gill every fifteen or twenty minutes until it excites vomiting, and this should be assisted by drinking freely of warm water. If this emetic should not operate as physic, a cathartic of rhubarb, or castor oil, or cremor tartar, should be given the next day. To abate thirst give the saline mixture (see dispensatory) every two hours. Yeast is a powerful remedy in this disease, and after the stomach and bowels are cleansed, it sometimes effects a cure without any thing else. It may be given alone in doses of a half or a whole table-spoonful every hour or two; or mixed up with powdered charcoal, or two table-spoonfuls of it may be added to a quart of beer or porter, and a wine glass full may be taken every hour or two. Sponging the body with cold water is likewise one of the most powerful means that can be made use of in typhus fever, and the sooner it is adopted, after cleansing the stomach and bowels, the better. It may be used at any time of the day when there is no sense of chilliness present, when the heat is above what is natural, and when there is no profuse perspiration or sweating. If great debility with sinking of the spirits should come on after reducing the heat by sponging or otherwise, some cordial such as wine or brandy should be given immediately.

In this fever, the greater the debility, the greater will be the danger, and therefore as soon as there is any remission of fever the great point is to keep up the strength by a liberal use of quinine dissolved in wine, or of Peruvian bark with wine, and a nourishing diet, such as wine panada, arrow root, rice, toast, &c. By this general plan a cure will generally be effected; but if at any time the head should be affected with stupor and delirium, it will be proper to shave the head and frequently apply cloths wrung out of cold vinegar and water to it, or if that should not be effectual, a blister to the head and mustard sinapisms to the feet will be necessary. When a diarrhea or looseness occurs, three or four drops of laudanum should be given, to be repeated and the dose increased as may be found necessary. But if these means fail and there is great prostration of strength with stupor, old madeira wine must be given in large quantities; he will relish it better mulled at first, but will soon be able to take it

clear to the extent of one or two quarts a day without any danger of intoxication. It should be taken until the pulse fills, the delirium abates, and warmth returns to the extremities ; and upon the smallest appearance of the stupor returning, the pulse quickening and sinking, the wine must be resumed and continued in that quantity which is found sufficient to keep the patient from sinking. When wine cannot be had, rum or brandy diluted with milk or sweetened water will answer, and with some patients is relished better. As soon as the patient is able to take nourishment, the quantity of wine must be gradually diminished, for even a third part of what was necessary when laboring under the disease would now produce dangerous intoxication.

In very malignant cases, this fever is fatal on or before the seventh day ; more frequently, however, those who die are carried off towards the end of the second week. When the patient lives over the twentieth day he generally recovers.

In the early stage of this disease when there is much heat, washing the face and hands with cold vinegar and water, and wiping the body with cloths wrung out of the same, will be highly refreshing ; and in the more advanced stage of the disease when there is less heat, bathing daily in a strong decoction of black or red oak bark about milk warm, will produce the happiest effects. The patient should have his linen and bedding changed often, and every thing that contributes to cool air and cleanliness should be adopted.

CHAPTER VI.

SYNOCHUS, MIXED FEVER, OR SIMPLE CONTINUED FEVER.

SYMPTOMS.

SIMPLE continued fever is that which is most common in this country. The symptoms in the first stages of this fever are similar to those which occur in synocha or inflammatory fever ; and, in the latter stages of it, the symptoms are nearly the same as those which take place in typhus. The inflammatory symptoms however, are not generally so violent as they are in synocha, nor are the typhoid symptoms so alarming as they are in true typhus fever. The patient is generally unwell sometime before he is confined to his bed ; the pulse

which is quick and strong at first, grows weaker without diminishing in frequency. The duration of the disease is very various, but when it once subsides the patient recovers his strength very rapidly.

TREATMENT.

In all fevers we must recollect that nature is interrupted in her course, and is struggling to regain her native channel. The principle object therefore is to assist nature in re-establishing a healthful action, by opposing with proper means every symptom that operates against this. In simple continued fever every variety of symptoms are occasionally met with, and our first and general plan must be to moderate arterial excitement by small bleedings when the pulse are full and quick, and the pain in the head considerable, and the patient of full habit of body; and the bowels and stomach must be evacuated of their contents by a gentle emetic or cathartic, or both. Bleeding should be used only in the commencement of the fever, and practiced when the fever is on, and the heat above the natural standard of health. The patient must be kept quiet and every source of irritation of body or mind must be avoided. Blisters must be applied if there is local pain, and if the circulation is unequally diffused, denoted by cold feet, legs, hands arms, apply blisters and stimulating drafts to the parts to cause the blood to circulate more equally, for which purpose give also Dover's powders once an hour or any other diaphoretic, in their common dose, (see diaphoretics, dispensatory,) when the heat is great and the fever high in addition to the diaphoretics; or alone, give solution of salts of nitre, or a tea-spoonful of spirits of nitre once in two hours.

If typhoid symptoms come on, delirium, tongue black and scabrous, with fetid breath, and black and offensive discharges, the same course recommended in typhus must be pursued; and after a laxative of three grains calomel and eight or ten rhubarb, repeated until it moves the bowels once or twice; give freely of port wine, quinine, bark, columbo, &c.

The patient may be washed or sponged all over with cold water at any time when the fever is on, and his linen and bed clothes changed frequently, but only when the heat and pulse is above the natural standard. The diet should be light and nourishing, such as toast, gruel, tapioca, panado, rice, arrow root, strong coffee, &c.

N. B. In this fever, more than any other, the treatment is to be regulated according to discretion, and we must watch and combat the symptoms as they show themselves. The drink should be slightly soured with lemon juice, any of the acids, ripe peaches, tamarinds, apples sliced in water, water and cream of tartar, and soda dissolved in water, and if the stomach reject these the inclination of the patient must be consulted. Cold drink must not be given when the patient is in a sweat. If stupor comes on, in addition to tonics and stimulants, blisters must be applied to the arms and legs; the symptoms of irritability allayed by musk, castor and opium, as in true typhus.

CHAPTER VII.

TYPHUS SYNCOPALIS.

SYMPTOMS.

THIS kind of typhus or nervous fever has appeared principally in North America. It is distinguished by sudden and great debility from the very first, which prostrates the system at once, without any appearance of reaction throughout the whole disease. The manner of the attack is like that of fainting, hysteria, palsy, apoplexy, or of general and excessive weakness. The symptoms are excessively rapid and destructive; the extremities are cold, and the skin is insensible to the most powerful rubefacients and blisters. It is attended with pain in the head, vertigo, and a feeling of great sinking, or a painful sense of vacuity and faintness at the epigastrium or pit of the stomach. The stomach and bowels are either entirely insensible, or very irritable; and the least exertion greatly exhausts the patient. It sometimes runs its course in from three to seven days, and sometimes not under several weeks. I once saw a case which continued nearly six months. In this case there was violent pain in the head and symptoms of palsy. One of the characteristics of this disease is the great versatility or changeableness of symptoms with extreme prostration of strength in all of them, a re-action seldom or never taking place. Sore throat sometimes accompanies it, and petechiæ or spots resembling flea bites will often occur. Difficult respiration, insensibility, coma, coldness of the surface, irritability of the stomach, difficulty of swallowing, and petechiæ, are fatal symptoms.

CAUSES.

Cold is most frequently the exciting cause ; but it may originate from contagion or from exposure to a moist atmosphere, or from grief, fear, fatigue, excessive stimulation, or debility produced by other diseases.

TREATMENT.

Every thing that has a tendency to waste the vital powers must be avoided. Bleeding, purging, and vomiting, will generally prove fatal, or at least will greatly retard recovery. Opium is considered the main stay in this disease. The bowels should be opened with some gentle laxative as castor oil, with which should be combined a grain of opium to prevent its operating much, as two or three smart operations might occasion the death of the patient. When there is great stupor with insensibility approaching epilepsy, blisters may be applied to the arms, legs or back of the neck, and in such cases I have administered the croton oil with good effect. It is said that calomel joined with a diaphoretic medicine so as not to operate as physic under twelve hours, cures the patient effectually. In this disease the bowels may not be opened for three or four days or a week without inconvenience ; but if there should be tenderness or slight pain in the bowels they should then be moved by a gentle laxative, such as small doses of magnesia, or injections may be used, the opium in the mean time must be continued through the whole disease. The quantity of opium to be given is three or four grains an hour, or even more ; and if the pulse be soft and quick, with general weakness, the system must be supported with warm sweetened wine or brandy by the tea-spoonful, and continued while necessary without any regard to quantity, so long as it does not intoxicate. As the system rises, a nourishing diet must be used instead of the wine, brandy and opium, and in all cases the mind should be kept perfectly easy and tranquil, by concealing the danger of the case, and encouraging the hope of recovery.

OF THE PLAGUE.

SYMPTOMS.

THE symptoms of this terrible malady very nearly resemble those of typhus. The great line of distinction between

them is, that the plague is always attended with buboes in the groins and armpits, which are not to be observed in typhus. The attack, which is generally towards evening, commences with a feeling of great lassitude and weakness, coldness, but soon succeeded by heat of skin, giddiness, with pain in the temples and eyebrows. The natural expression of countenance is changed into a wild furious look, or sometimes a look claiming pity, with a sunk eye and contracted feature. The pulse is small, hard and quick, and sometimes intermitting. Staggering, sudden and extreme prostration of strength come rapidly on, the speech falters, the stomach rejects almost every thing, the tongue is white and moist; there is a constant inclination to void urine, the evacuations are highly offensive, and the patient is perfectly indifferent about recovery. Generally on the third day the buboes commence forming by excruciating pains in the groins and armpits, and the patient then frequently goes off delirious; or if he survives till the fifth day when the febrile symptoms abate, he is almost sure to die from debility. But if the patient lives over the fifth day, and the bubo is fully formed, he is then considered as nearly out of danger.

CAUSES.

It is generally communicated by contagion from actual contact with the person or clothing of the living or dead body affected with it. Those who have once had the disease, although not so liable to it as others, are not considered safe from a second attack. It may be taken like small pox, by inoculation; but that does not mitigate the disorder. Doctor Whyte, in 1801, tried the experiment on himself, and died on the fourth day. Mr. Van Rosenfeldt did the same in 1817, and died on the second day. The plague generally begins at Grand Cairo, spreads to Alexandria, and from thence through Syria to Smyrna and Constantinople.

TREATMENT.

The plague is generally considered beyond the reach of medicine. Some authors, however, are firm in the belief that it does not differ materially from other summer fevers of a high grade, and that it may be prevented, and often cured. It is stated that sudorifics and mercury always do good; that when the disease is inflammatory and attacks the brain, which is known by the incessant headache and furious delirium from

the onset, blood should be taken in a standing posture until fainting is completely produced; and, when the perspiration which follows it takes place, it should be encouraged by warm drinks. The patient is then to be immediately salivated in the shortest time possible, and for this purpose the Hindoo method of doing it by cinnabar fumigations should be adopted, as follows: bees-wax is melted and spread over strips of cotton cloth; an equal quantity of cinnabar in powder is spread over the waxed strips, which are then rolled up in the shape of candles; the person to be salivated being seated, a blanket is thrown over him, and the lighted cinnabar candle is placed under the blanket so that he inhales the vapor.

CLASS II.

ERUPTIVE FEVERS, OR THE EXANTHEMATA.

CHAPTER I.

THE next subject to which we shall direct our attention is the *exanthemata*, or third kind of idiopathic fever. The genuine exanthemata are small-pox, chicken-pox, cow-pox, measles, and scarlet fever. There are some diseases of less importance which are allied in some respects to these, and may with propriety be arranged in this part of the work, under the title of the minor exanthemata. In this chapter we shall notice only the former.

The exanthemata are attended with fever, and an eruption which like the fever goes through a regular series of changes. They occur seldom, or never more than once to an individual during life, and arise from specific contagion.

The character of any exanthematous fever, except in one form of scarlatina, is inflammatory, and this it assumes, in the young and old, in all climates, seasons, and situations; and it is a striking phenomenon in nature developing disease, that every race of men, under every variety of circumstances, climate, age, and constitution should be susceptible of the same disease, and that it should present every where the same character and run through the same stages, and that having occurred, should scarcely, if ever, appear in the same individual a second time, though exposed to the utmost malignity of infection. There are many cases recorded in which it is said

to have occurred more than once in the same person ; but there are so many eruptive diseases which may be mistaken for small-pox &c. that we feel safe in saying that any one who has once had an exanthematous affection may attend those laboring under it without apprehending danger. Some persons remain invulnerable for years and then take it ; and a few remain so for life.

Small-pox arises from specific contagion, (see general doctrine of contagion,) but we are ignorant of its nature in the exanthematous diseases ; but this, that it is of so subtle a nature that a single vesicle of small-pox contains sufficient of the specific matter of contagion, to communicate the disease to hundreds.

CHAPTER II.

SMALL POX.

SYMPTOMS.

AT the end of ten or fourteen days after receiving Small Pox contagion into the system, the eruptive fever commences with severe pain in the back and head ; with vomiting, and distressing pain at the pit of the stomach. The patient is very drowsy, and sometimes delirious. On the third day of this fever the eruption appears like flea bites, first on the face and limbs, and gradually extending over the body. On the third day of the eruption a small vesicle or blister, having a central depression, is observed on the top of each pimple or pustule. On the sixth day of the eruption, these pustules instead of having a central depression or flatness, are now filled up with a thick yellowish matter, and become plump and round. On the seventh and eighth days of the eruption the pustules burst, and scabbing commences over the body. The mildest form is when the pustules are distinct from each other and are well filled up with matter ; it is then called *distinct small pox*. When the pustules run together and remain flat, it is termed the confluent small pox, and is much the most dangerous.

TREATMENT.

All that can be done is to moderate the violence of the fever in the first stage by bleeding if the pulse be full ; during the

disease cold air may be freely admitted into the room ; cooling and sour drinks should be given, and the bowels must be kept open either by mild purgatives or glysters. In the confluent kind, and especially when the clusters are of a dark red color, the disease is more of a putrid nature, and consequently, instead of bleeding, requires a liberal use of bark and wine to invigorate the constitution, as directed in the nervous fever. If couvulsions, or great restlessness prevail, the patient must be exposed to cold air, and a dose of laudanum given. If there should be difficult breathing, or swallowing, blisters are to be applied to the breast and neck, and such gargles as are recommended for sore throats may be employed. He must live on a vegetable diet, such as arrow root, panada, milk, rice, &c. If the disease be of the putrid kind, wine, cider, perry, porter or milk toddy, may be given freely.

When the vaccine or cow pox matter cannot be procured, those who are about to be exposed to the small pox should be inoculated with small pox matter, as it renders the disease much safer ; and for this purpose the system should be prepared for it by a few doses of some gentle and cooling physic, a spare vegetable diet, sour drinks, and a cool airy room. The matter must be taken from the pustule of a person who is otherwise healthy, or it may be obtained from one who has been inoculated, although he may have had the small pox previous to his being inoculated. The matter, made nearly fluid may be inserted with a needle, or the point of a lancet, or on a bit of thread by raising the skin with the point of a knife or lancet and pushing it under. On the third day the pimple appears, and on the seventh or eighth day rigors come on. The feet should be put in warm water once a day after the pustule begins to appear ; this determines the blood to the extremities and lessens the eruption and inflammation about the face and throat. But the best way of curing the small pox is to prevent it entirely by being inoculated for the kine pox.

KINE POX, COW POX, OR VARIOLA VACCINA.

THE genuine cow pox originates from the grease in the heels of horses. It appears on the teats of the cow, in the form of vesicles of a blue color approaching to livid ; they are elevated at the margin, depressed at the centre, and surrounded

with inflammation. Dr. Jenner, in the year 1798, discovered that those who are inoculated with the kine pox matter are effectually protected from the small pox. The matter may be taken from the cow, or from the arm of a person already inoculated. The person from whose arm it is taken should have no other cutaneous disease about him, otherwise the matter will not be good. It should be taken from the arm about on the eighth day. It makes but little difference how the matter is applied, but as good a way as any perhaps is to raise up the skin with the point of a knife or lancet, and push in a bit of cotton thread which has been previously soaked in the matter. If the matter be good, and has taken effect, it will generally show itself on the the third day by a circular small red spot a little elevated; it continues to increase in size and by the fifth day the vesicle or blister is quite distinct. On the eighth day an areola or inflamed circle begins to form around the vesicle, which is now in its perfect state.

It is proper to observe that when the matter does not take effect a false eruption will sometimes appear; and although the regular progress of the pustule as above described will generally distinguish the true from the false, still the only *sure* method of determining the point is to vaccinate with good matter the second time. If it takes effect the second time we may be sure it failed the first time; for those who have had the true kine pox once will never have it again. By making broad punctures on the body and shoulders, and introducing the matter at those places, the inoculation will take effect thirty or forty hours sooner than it will by introducing it into the arm. If a person be inoculated for the kine pox after taking the small pox, they will both proceed together and modify each other. The following case, "a child exposed to the influence of the natural small pox was vaccinated, and four days after the operation was repeated. On the eighth day from the first vaccination no appearance was observed of the progress of the kine pox. Further vaccination was then considered unnecessary and too late, and the parents were advised to have the child inoculated with the small pox, which was preferable to having it in the natural way. Matter was taken from the brother, who had the small pox very badly in the adjoining room, and inserted in the arm, near where the vaccine matter had been inserted. The pox rose on the arm, and to the surprise of the physician, the vaccine vesicle also rose, and they progressed together, modi-

fyng each other. The vaccine pox was smaller than usual, and went through its stages sooner than is common, though it had previously laid dormant, and appeared to have been put into activity by the small pox. The small pox was also modified, the pox were few, the sickness trifling, the confinement nothing; and the child recovered before his brother, who was first taken."

VARICELLA, VARIOLODES, VARIOLOID, OR MODIFIED SMALL POX.

AFTER stating, as a general rule, that vaccination secures the system from small pox, it must be confessed that there are some exceptions to this rule, and that small pox *does* sometimes take place in those who have been inoculated for the kine pox. This, however, is not common; and most generally whenever it does happen, the disease is rendered so mild and the eruption so modified, by the previous vaccination, that it is now by some authors called *varioid*, or *modified small pox*. The eruptive fever is generally severe, but it hardly ever fails to go off entirely as soon as the eruption comes out, the pustules of which are frequently hard or horny, and they generally mature on the fifth day.—These pustules, however, have depressed centres like small pox; and it is a bone of contention among authors whether varioid be a different disease from small pox, or only the same thing in a milder form. It is admitted by all that an unprotected person who is inoculated with varioid matter will have the true small pox. It may safely be said that vaccination* secures the greater part of mankind both from small pox and varioid; still there are some constitutions which it secures from small pox, but does not protect from the varioid; there are some other constitutions which it does not protect at all; and some likewise that small pox itself does not prevent from taking small pox again, as often as they are exposed to it. But why it is, that some constitutions are thus incapable of being protected from small pox, is not yet known, and probably never will be.

* Inoculation for the kine pox.

VARICALLA, LYMPHATICA, OR CHICKEN POX.

AFTER a very slight fever the eruption appears in vesicles or blisters about the size of a split pea, perfectly transparent, like that which is raised by a scald or blister ; but they have no central depression like small pox. About on the fourth day the matter in them becomes thick, and then they very much resemble that stage of the small pox when the central depression of its pustules is swelled out with matter.

TREATMENT.

It is generally sufficient that the patient be kept moderately cool, and supplied with cold or sour drinks and light food. If there should be much fever, a dose of salts may be given ; and finally the whole general plan to be adopted, both in this disease and in the varioloid, is the same as that which is practised in small pox.

CHAPTER III.

OF THE MEASLES.

THIS disease made its appearance in Europe about the same time of the small pox, and was for a long time considered as a variety or modification of that complaint. But it is now known to be a distinct disease.

SYMPTOMS.

The measles commence with the usual symptoms of fever, from which at first it cannot be distinguished. We are to judge of the disease from the prevailing epidemic ; the eyelids are swelled, the eyes suffused, a watery and morbidly sensible to light ; there is a thin discharge from the nose, with sneezing, and a dry cough and hoarseness, and difficulty of breathing. Beside these catarrhal symptoms, the eruptive stage is marked by heaviness, drowsiness, great heat of skin, frequent and hard pulse, and on the fourth day from the occurrence of cold chills the eruption usually shows itself, but is some times delayed a few days longer. The eruption first appears on the forehead, and gradually spreads over the whole body. It first appears in red circular spots, which soon run

into irregular patches, the color is of a dingy red, very different from the *livid* redness of the scarlet fever. The fever is commonly high, the stomach irritable, the cough severe, and the symptoms merge to an acute inflammation of the lungs. In about five days the eruption disappears, but this is not always attended with a subsidence of the other symptoms. It is said by the doctors that measles have occurred eight times in the same individual. I never knew but one man who said he had had the measles more than once; this man said he had them seven times, and in the seventh and last case his head was literally striped of hair, and his finger and toe nails come off. Measles generally prevail during the spring months. In feeble frames we have sometimes to witness the dreadful spectacle of gangrenous erosions; the gums ulcerate and the teeth loosen and fall out; a black spot appears on the cheek or on the corner of the lip, which spreads and destroys the patient. This is called *cancrum oris*.

The measles arise from specific contagion, and remain in the system about eight days; in many cases much longer, even to two or three weeks.

Inoculation is said to produce the measles and renders them milder than when they occur in the natural way. The inoculation must be performed by laying a piece of lint, dipped in the blood of a person laboring under the measles, on a scarified surface, or inserted beneath the skin of the person in whom it is to be produced.

TREATMENT.

The treatment must in the main be regulated by the symptoms. If the disease is slight nothing more is necessary than to keep the body open by gentle cathartics, as epsom salts, castor oil, senna, &c. But if the febrile symptoms run high, with difficulty of breathing, we must bleed largely, give an emetic, or brisk cathartic; blister the breast, arms and legs to draw the blood from the lungs; breathe through a tea-pot the steam of hot water, and give Dover's powders or small doses of antimony or ipecacuanha or any of the sudorifics (sweating medicine) used in fever. This course will be particularly appropriate in cases where they have receded, gone back, to bring them out; with putting the feet in warm water, and giving warm drink, wine whey, warm sling, mint tea, &c.; but the patient must not be exposed to cold while the eruptions are coming out. If the cough is troublesome,

give freely of flaxseed tea, slippery elm or solution of *gum arabic*. Laudanum or paregoric may also be taken at night to allay the cough.

We are to dread the consequences arising from measles in many instances as much as the immediate disease, for frequently phthisis pulmonalis (consumption) arises and destroys the patient. Or the bowels may be left in a weak state, permitting a diarrhea which sometimes proves fatal. An obstinate inflammation of the eyes frequently ensues, if the disease is neglected in the commencement. These are generally obviated by bleeding and evacuating the first passages, in the first stage of the disease.

But if the symptoms manifest a malignant kind of the disease, and a putrid tendency prevail, the treatment must be right to the reverse of the above, and the cure must be conducted as in nerverous fever ; which see.

Regimen ; should be proportioned to the degree of fever ; cooling mucilaginous drinks, such as rice, or barley water, flaxseed tea, elm tea, solution of gum arabic, &c. ; with jellies, toast, panado, rice, arrow root, sago, and gruel. The greatest caution must be observed, that the patient be not exposed suddenly to cold. I knew a young woman killed in a few hours, through the over officiousness of attendants, by changing her clothes when she was in a profuse perspiration.

SCARLET FEVER, OR SCARLATINA.

THE scarlet fever attacks the skin, the tonsils, and the mucous membrane in their neighborhood, in mild cases there is but little or no affection of the fauces, but a slight efflorescence.

Scarlatina is divided into three varieties.

1st. Scarlatina simplex, which commences with weariness, dejection, chills, alternated with heat, sickness, and all the common symptoms of fever in a slight degree. The eruptions appear on the second day, about the neck and face in red points, which in a few hours cover the whole body, on the limbs there is a continuous efflorescence, but on the body the rash is in irregular patches, the color is a bright scarlet, being most distinct about the bendings of the joints. The eruption is often rough to the touch, but the simplest and surest symptom of the disease is the papillae of the tongue, which

are always elongated and extend their scarlet points through the white fur that covers the tongue.

2d. *Scarlatina angina*, begins with the symptoms more violent, and in addition to the above an inflammation of the fauces appears, with uneasiness in the throat, the voice is thick, swallowing difficult, the throat appears red and swelled as in quinsy; and in most cases this goes on to ulceration, which produces a disagreeable fœtor, and the throat is clogged with viscid phlegm. In this form the eruptions seldom appear before the third day, frequently vanishing and reappearing. About the fourth or sixth day from its first appearance it goes off, and extensive exfoliation of the cuticle begins, which continues several days.

The febrile symptoms are usually very high and of an inflammatory character, the heat of the skin is more intense in this than in any other form of fever; the headache is generally severe, and not unfrequently permanent deafness is the consequence of this disease.

3d. *Scarlatina maligna* is that form which appeared in London in 1745, which is thus described by Dr. Fothergill. "It is ushered in by rigors, giddiness, acute headache, restlessness, faintings, a sense of heat and soreness of throat, vomiting or purging. An efflorescence appears at irregular periods, but is seldom permanent. A remarkable tumefaction of the fingers sometimes takes place. In the throat appear dark sloughs (stuffs) surrounded by a livid base, and occasioning intolerable fœtor, the parotid glands swell and are painful to the touch, the mouth is encrusted with a brown fur, and the throat is clogged with viscid phlegm, the inside of the nostrils is of a deep red color, from which a corrosive sanies flows, excoriating the cheeks and angles of the mouth." These are frequently attended by severe diarrhea, with discharges of blood from the bowels, nose and mouth. And if the patient survive these, he has to struggle through the greatest debility or hectic fever which follows. The fever in this variety of scarlatina is typhoid from the beginning, and is frequently attended with coma.

This disease is liable to be confounded with measles; in scarlet fever the eruptions generally appear on the second day; and spreads more, and consists of pimples under the skin, in some places distinct, in others running together. In measles these are distinct and rough to the touch, leaving a space of natural skin between the eruptions. In scarlet fe-

ver the color is a bright red. In measles it is of a dark red in color resembling a raspberry. In scarlatina the cough is short, without expectoration; in measles obstinate with a discharge of phlegm. In scarlatina the eyes bear the light; not so in measles; and we will be further able to distinguish between the two from the character of the fever and the affection of the throat.

Prognosis; in the first variety we need apprehend no danger; in the second variety there is some danger, but the third or malignant form we must look upon as a disease of the utmost danger. *Specific contagion* is the cause of scarlet fever, and it remains in the system from four to six days.

TREATMENT.

In the first variety sufficient will be gathered on the treatment from the symptoms detailed, from the course recommended in fever, and from a knowledge of the treatment in the other varieties of the disease.

Where inflammation prevails, it must be moderated; and when typhoid symptoms are present, the system must be supported. The cold affusion must be had recourse to in the extreme heat of the skin; there is no tendency to inflammation in the chest in this complaint, the application of cold water is therefore safe, even though there are ulcers in the throat, and must be repeated, but only when the skin is hot and dry. The bowels must be opened by ten or fifteen grains of submuriate of mercury (calomel,) or some other brisk cathartic medicine; with cold or acidulated water or lemonade for drink when the fever is on, and a weak solution of tartrate of antimony in dose of a tea-spoonful once an hour. When the disease attacks adult persons of full habit of body, bleeding will be indispensably necessary; headache and oppression are the symptoms which require it. Leeches may be applied to the throat with advantage when the tonsils are much swelled. Ifemetics are used it must be in the commencement, and given when the fever is on. Ipecacuanha, or tartar emetic, will be best; this clears the throat and stomach of the improper secretions and acrid sordes that are lodged there, which might occasion fatal diarrhea. Take ipecac one scruple, tartrate antimony one grain, mix, for grown person; or take tartrate antimony three grains, wine of ipecac six drams, chalk prepared drams li., water six ounces, syrup half ounce, mix, take atable-spoonful every half hour until

it vomits ; for children lessen the quantity. These must not be given where the disease is typhus. If diarrhea comes on purgatives of rhubarb and soda will generally stop it. The vitiated mucus must be washed away during the disease by gargles of rose water, port wine, decoction of bark, with tincture of myrrh &c. In typhus form the free use of bone-set tea (*eupatorium perfoliatum*,) or camomile, will be serviceable if given in the commencement, as the disease advances it will be found necessary to support the patient with quinine, decoction of bark and sulphuric acid, wine, opium, and aromatics in their usual doses. You must not forget to move the bowels once a day with *oleum riani* or rhubarb, to free them of the foetid matter that is constantly accumulating, and produces diarrhea. A valuable gargle is made by taking two table-spoonfuls of red pepper, and two tea-spoonfuls of fine salt, beat them into a paste, add half pint boiling water, strain when cold, add half pint sharp vinegar, a table-spoonful may be taken every hour ; the throat may also be gargled with the same.

Blisters to the neck, arms, legs and between the shoulders are useful in this form and in short the course as recommended in typhus must be followed here.

The dropsy frequently succeeds every variety of this fever, and occurs on an average upon the twenty-second day from the decline of the eruption. The common method of treating this form of dropsy is by purges, squills, *digitalis* and the other diuretic medicines, at the same time that we support the system by aromatics, and bark and wine.

With regard to the prevention ; the sick must be confined to separate apartments, the patient and every thing about him must be kept perfectly clean, and the room well ventilated ; frequently syringing or gargling the throat and washing the hands of the attendants will render perfect security. The above precautions, and confining the sick to a separate room in the house, will prevent the spread of the disease.

CHAPTER IV.

THE MINOR EXANTHEMATA, OR SMALLER ERUPTIONS.

HERPES.

THIS term is appropriated to a disease attended with febrile symptoms, in which the vesicles pass through a course of increase, maturation, and decline, terminating generally in a fortnight or three weeks. These vesicles are distinguished by their occurring in distinct clusters appearing in quick succession, set near together upon an inflamed base, which extends some way beyond the margin of each cluster. The pain at the close of the disease is sometimes so intense as scarcely to be allayed by opium. The most frequent form of the disease is the *shingles* (herpes roster,) which for the most part appears on the abdomen (belly.)

The young are most subject to it. But little is known of its causes; irregular modes of life are probably the most common causes. Herpes circinatus (ringworms) often prove severe in hot climates.

TREATMENT.

The common purgative draught, infusion of senna, one ounce jalap, fifteen grains super tartrat of potash, twenty grains, syrup of orange peel (cortex aurantii) half an ounce, repeated as circumstances require, or some other mild purgative, as salts and castor oil, will in general be all that is necessary; but occasionally we meet with cases which require a rigorous anti- (against) phlogistic (inflammation) treatment. I have always managed the shingles without difficulty, by giving a dose of salts, followed with Dover's powders once an hour, and washing the eruptions with a weak solution of sugar lead.

Herpes of the prepuce, are treated by laxative medicines, with lead water applied to the part or the black lotion, cal. one dram with six ounces lime water, may be substituted. Those occurring on the eyelids are best treated by laxatives, lead water to the part yellow ointment, (unguentum nitritas hydrargyri,) &c.

NETTLE RASH, OR URTICARIA.

URTICARIA is preceded by symptoms of fever, the eruptions appear in the forms of white blisters similar to those produced by the stinging of nettles, and are called *wheals*. It is very itchy at night or on exposing the skin to the air. It continues about a week, and is brought on in children by teething, and at different ages by disordered state of the bowels and stomach, and taking improper food. When it arises from improper food as shell fish, almonds, cucumbers, &c. An emetic followed by physic is the course, and in children cutting the teeth with a lancet and cooling physic is all that is requisite.

LICHEN.

THIS is frequently mistaken for the genuine exanthemata; lichenous eruption is papular, of redish color inclining to purple, is in clusters, and for the most part very copious about the hands and bendings of the wrist, and elbow; it does not advance to the formation of vesicles, but usually ends in three or four weeks by desquamation of the cuticle. In many cases the constitution is unimpaired, at other times there are violent febrile symptoms present. There is an unpleasant tingling and itching of the skin, increased by warmth. Lichenous eruptions arise from various causes, from the heat of the atmosphere, (lichen tropicus,) from the venereal poison, but generally the causes are not well defined or probably unknown. This is without danger, and all that is necessary to be done, is to give saline aperients, (dose epsom salts, for instance,) observe a low diet and cool regimen.

PEMPHIGUS.

THIS is attended with fever, the vesicles are from the size of a pea to that of a walnut. Sometimes the blister commences round a small brown point produced by the rupture of a small vessel. The vesicles affect the throat and sometimes extend through the whole tract of the bowels.

Difficulty of swallowing and the appearance of vesicles in

the mouth, distinguish it when in the gullet. *Hiccup*, pain in the stomach and nausea, vomiting a bloody matter, show its seat in the stomach; general soreness of the belly, with bloody stools, in the bowels. The vesicles when they heal leave pits like those of the small pox.

When this is of an inflammatory nature the course recommended in synocha is proper here. The blisters must be opened and washed frequently with milk and water. The purgatives must be mild when the throat and bowels are affected, castor oil and salts will be proper. And saline and cooling medicines are proper in the typhus form, together with the tonics recommended in that fever.

POMPHOLYX.

THIS is a chronic ailment with an eruption of bullæ, or vesicles of the size of a walnut which appear in successive crops, mostly on the arms and legs. This differs from pemphigus, in not being attended with fever. It seems to be owing to a depraved and debilitated state of the system. The doctors say medicine has no power over it. I have seen bark and wine, with previous laxatives, have a good effect in pompholyx.

THE YAWS, OR FRAMBŒSIA.

THIS prevails chiefly among negroes, and is endemic in Africa and the West Indies. There is a slight fever followed by pimples, increasing for eight or ten days, when pustules form, which are soon covered with loose irregular crusts, beneath which foul, sloughy ulcers form, which gradually shoot out a fungus, resembling in appearance a mulberry. The disease wears itself out in about eight months; is not attended with danger; and laxatives, a cooling regimen, and the application of the actual cautery, (hot iron,) or escharotics, (corrosive sublimate, burnt alum, &c.) to the ulcers, and a generous diet and tonics, toward the decline embraces the whole treatment.

The minor exanthemata are frequently mistaken for the genuine; and this accounts satisfactorily to me for the many supposed cases of a recurrence of measles, small pox, &c. in

the same individual. Chicken pox and other similar cutaneous eruptions are frequently mistaken for the small pox, &c. but the probability is that no individual is ever effected with any of them more than once.

CHAPTER V.

LOCAL INFLAMMATORY DISEASES.

PHRENITIS, OR INFLAMMATION OF THE BRAIN.

SYMPTOMS.

THE attack commences suddenly, by pains in the back of the neck shooting into the head; violent throbbing in the arteries of the neck and temples; redness of the face and about the eyes; terrible headache; incapability of bearing light or noise; the ideas become confused; the pain increases; the eyes sparkle; fierce delirium comes rapidly on; the patient obstinately shuts his teeth against all food and medicine, and, with any thing he can lay hold of, he attempts to destroy his own life.

CAUSES.

Exposure of the head to the scorching rays of the sun; violent fits of passion; deep and long continued study; sudden exposure to cold after great heat; intemperate use of ardent spirits; suppression of usual evacuations; poison; want of sleep; erysipelas of the face, fracture of the skull, &c.

TREATMENT.

Twenty ounces of blood should be taken from the arm in a full stream, and during the bleeding the patient must be held in a standing posture. When the pulse rises, the bleeding is to be repeated as the symptoms may indicate, or the strength of the patient permit. Immediately after bleeding a large dose of salts, or of calomel and jalap, must be given, and in two hours, if it does not operate, it should be repeated. The head should be constantly wet with ice, or cold vinegar and water. After the pulse is reduced by bleeding, if the pain in the head should still continue severe, then cupping or leeches should be forthwith applied to the temples, forehead,

and back of the neck. And if the symptoms still prove obstinate the head ought to be instantly shaved, and the whole of it covered with a blister. It will be of great service likewise, either to put the feet and legs into warm water, or to wrap them up in cloths wrung out of hot water, and afterwards to bind hot mustard plasters on the feet, in order to produce a revulsion of blood from the head. Salts of nitre dissolved in cold water should be given in a common dose, (see dispensatory,) once in two hours; and emetic tartar may be taken between the times of taking the nitre, just so as to create a nausea at the stomach, but not so much as to induce vomiting. And finally the patient should be kept in a standing posture as much as possible, in a dark room, and every thing around him ought to be quiet in order to keep the mind perfectly calm.

DELIRIUM TREMENS.

SYMPTOMS.

TREMBLING of the hands or whole frame; complete sleeplessness; delusions of sight, the patient sees things that do not exist; talks incessantly and incoherently; and although he is actually delirious, still there is not that violent pain and active inflammation which always attends phrenitis. Delirium tremens is, however, a dangerous disorder. If not cured, it usually runs its course in four or five days, and sometimes terminates in a fatal epileptic fit.

CAUSES.

Intemperance, or suddenly abstaining from ardent spirits after a long intemperate use of them, is the most common cause. It is said, however, that rheumatism, violent agitations of the mind, the poison of lead, and the long continued use of opium, will produce it.

TREATMENT.

Opium is the main stay and grand sheet anchor in this complaint. Bleeding is to be strictly forbidden, except by leeches on the back of the neck and about the head. If it be occasioned by suddenly abstaining from strong drink, it should be given to him again in small quantities. The principal

object is to calm the disturbance of the nervous system, and procure sleep ; and for this purpose opium must be given in large doses until it produces the effect. Ether, hartshorn, and camphor, are likewise useful ; and a dose of physic should be given in the beginning in order to regulate the state of the bowels.

OPHTHALMIA, OR INFLAMMATION OF THE EYE.

SYMPTOMS.

THIS disease commences with a pain or prickling sensation as of sand in the eye ; increased redness of the corner and inside of the eyelid ; attended with pain and heat over the whole surface of the eye, and a plentiful effusion of tears. As it becomes more violent it is accompanied with general headache, impatience of light, a severe darting pain in the eye and eyebrow, shooting into the head, with a feeling as if the orbit were too small for the eyeball.

CAUSES.

The same causes that induce inflammation of other parts, will produce inflammation of the eye ; such as exposure of the eyes to a strong light, or cold winds, sudden transition from heat to cold, particles of dust and sand, night watching, sewing, reading, or writing between daylight and dark, or by candle light, and external violence done to the eyelids or to the eye itself. A scrofulous habit of body may also predispose to it ; or it may be occasioned by small pox, or venereal complaints.

TREATMENT.

If not very severe, it is easily cured by low diet, gentle purging, frequent application of cold water to the eyes, or, in weak habits, by applying warm milk and water mixed with a little brandy, or by using an eyewater of four grains of white vitriol dissolved in half a gill of soft water, adding a few drops of laudanum. But when there is much inflammation, bleeding from the arm, and leeches to the eyelids, blisters to the temples, or on the back of the neck, emetics, purgatives, and cooling drinks will be proper ; and if there be violent pain in the head the eyes may be frequently bathed

in a strong decoction of poppy heads, or with warm weak laudanum. Or soft linen cloths kept constantly wet with cold water will sometimes reduce the heat and inflammation of the eye better than warm applications; and if one does not answer, the only way to determine which is preferable, is to try the other. The eyes must be defended from the light either by confinement in a dark room, or by wearing a piece of green silk over them. If the inflammation be occasioned by small pox, a seton on the back of the neck is one of the best remedies; an ounce of cremor tartar mixed with two or three grains of emetic tartar, may be divided into four or six doses, to be given morning and evening; and an eyewater of sugar of lead (see dispensatory) adding a little camphorated spirits, is likewise beneficial. If it proceeds from scrofula, or venereal affections, the general system must be treated as directed for those complaints.

CHAPTER VI.

CATARRH, COMMON COLD IN THE HEAD.

CATARRH is attended with a sense of fulness in the nose, weight and fullness in the head, with an altered state of the discharge from the parts. At first the secretion from the Schneiderian membrane of the nose is entirely checked; after a time there is a copious acrid discharge from the nose, which at length becomes natural in the quantity and quality. The inflammation extends to the mucous membranes in the neighborhood, and produces redness and watering of the eyes, hoarseness, soreness in the throat, cough, oppression about the chest and difficulty of breathing.

CAUSES.

The exciting causes of catarrh are cold and changes of weather. There is one variety of this disease which appears to be contagious, and is known by the name of influenza.

INFLUENZA.

THE epidemic catarrh or influenza is sudden in its attack and is attended with uncommon languor and debility, severe

headache and a disordered state of the stomach ; it generally runs its course in three or four days. It is not a very dangerous disease except when it attacks infants and elderly persons, to them for the most part it is mortal.

TREATMENT.

The patient should keep within doors, take a dose of salts, abstain from animal food, and promote a profuse sweat. To relieve the cough and soreness of the throat, take flaxseed or elm tea, or gum arabic one oz., water three oz., or cinnamon water one oz., mix and take a table-spoonful or two occasionally ; or tincture of opium and camphor half an ounce, wine of antimony half an ounce, half an ounce salts of nitre, laudanum one eighth of an ounce, gum arabic two ounces, water eight ounces, take a tea-spoonful once an hour ; or any of a similar composition. If there is considerable oppression about the chest with dry cough and fever, bleed and pursue more active means of depletion as emetics and cathartics.

In the epidemic catarrh the same general treatment is to be pursued, diaphoresis and expectoration must be promoted by the common diaphoretic and expectorant medicines, as preparations of antimony, ipecac, Dover's powders, squills, snake root, liquorice, &c. On account of the great debility attendant on influenza in a day or two from the commencement give bark and cordials.

QUINSY, OR CYNANCHE TONSILLARIS.

THIS is an inflammation of the throat, affecting especially the glands, called the tonsil glands, and spreading in many instances to the palate, uvula, pharynx, and nose.

SYMPTOMS.

It is distinguished by redness and swelling in the throat, by difficulty of swallowing, and fever. The swelling sometimes extends to the eustachian tube, and produces deafness. The fever is generally urgent, the pulse is often as high as one hundred and twenty a minute, the tongue covered with a thick coat of fur. The duration of the disease varies from a few days to several weeks. When the inflammation is active it terminates by supuration in one or both of the glands, which bursts in six or eight days ; when the inflammation is of a pur-

ple color, it partakes of the nature of erysipelas, and generally terminates in small ulcers of a grey color, resembling cynche maligna, but these go off in a few days without producing any other inconvenience. This in general is not considered a disease of much danger, yet it is that which deprived not the United States only, but the *world* of her *brightest ornament*, GEORGE WASHINGTON.*

TREATMENT.

When the symptoms are urgent and the fever high, bleed, or apply leeches externally to the throat; when the tonsils or palate are much swelled they should be scarified with a knife or lancet, a little blood obtained directly from these parts will afford great relief. The throat must be rubbed with some rubefocient lineament, the best of which is equal parts aqua ammonia and sweet oil. I have frequently arrested it by giving an emetic in the commencement, this is sometimes useful in the later stages as the action frequently causes the swelling to burst. The bowels must be moved by a smart dose of salts. The use of gargles, as decoction of cinchonia bark made strong with alum, or infusion of roses and pepper sweetened with honey, or cayenne pepper, a tea-spoonful, hot water half pint, three ounces peruvian bark, to which add a few drops muriatic acid, rinse the throat frequently; or what is as good as any thing in the world in form of gargle, take a tea-spoonful red or any kind of pepper, half pint boiling water, a small piece of alum, and if convenient, one pint strong tea or decoction of dogwood; gargle the mouth and throat fre-

* On the afternoon of the 13th December, 1799, while the General was riding out to one of his farms, he was overtaken by a rain which soon turned into a snow storm. A quantity of snow was deposited betwixt his cravat and neck, to which he paid no particular attention, but on his return home supped and went to bed as usual. Some time before day he was awakened with sore throat, and difficult breathing. A domestic was called up, who bled him, which afforded no relief. About ten o'clock Dr. Craik, of Alexandria, reached Mount Vernon; he immediately called for counsel, doctors Dick and Brown. All was done that human skill could do; but the moments hastened only to confirm the previous *declaration* of the *illustrious sufferer*, "that his hour was come."

To oblige Mrs. Washington he continued to take medicine until the inflammation obstructed swallowing; he then undressed himself and went to bed, as he said, "*to die*." About half an hour before he died, he desired all to leave him, that he might spend his last moments with God.

Thus, he who had been the *sage in council*, the *storm in war*, and he, who had filled up the measure of his country's glory, was the *triumphant christian* in the arms of death!

quently ; but these must not be swallowed as they aggravate the complaint. Apply blisters to the throat, upper part of the breast or behind the ears, and more especially if the disease appears to be stationary. When the tumor is so large as to impede respiration, a deep incision must be made with the lancet, this will let out the matter if formed, and if not the flow of blood will lessen the inflammation and give instant relief. When the quinsy leaves a permanent tumor, it is recommended to extirpate it with the knife or by a ligature, this should not be resorted to unless the tumor is likely to suffocate the patient. Inhaling the fumes of warm vinegar through the spout of a tea-pot, and warm applications to the throat, when it cannot be scattered, must be resorted to, to favor supuration.

MUMPS, OR CYNANCHE PAROTIDÆA.

THIS is an inflammation of the parotid gland situated at the corner of the jaw. It begins with slight fever, followed by swelling at the angle of the jaw, the swelling continues three or four days, and then usually goes off by resolution. In a few cases it has terminated in suppuration. This disease is manifestly contagious. As the tumor subsides other parts are likely to be affected, when this occurs the treatment is the same as if it had arisen from any other cause.

TREATMENT.

The mumps seldom require medical treatment. Confinement to the house, warm fomentations, and a dose of salts are all that is necessary in ordinary cases. Where it is more severe, bleeding and brisk purging, small doses of tartar emetic, and blisters near the swelling will be proper. If the testes are affected, use cooling applications and suspend the parts.

LARYNGITIS, INFLAMMATION OF THE LARYNX OR UPPER PART OF THE WINDPIPE.

SYMPTOMS.

THE upper part of the windpipe is called the larynx ; the lower part, the trachea. Acute inflammation of the larynx

is known by a pain in that part of the windpipe ; by difficulty of breathing and swallowing, hoarseness, loss of voice, and a terrible sense of suffocation. The pain is increased by pressing on the thyroid cartilage, (Adam's apple.) Putting out the tongue is also generally attended with pain. There is almost a perpetual hawking and spitting up of a tough mucus or phlegm. It is a very dangerous disease, and is apt to terminate one way or the other in about four days.

CAUSES.

It has never been known to arise from any thing else except cold, and seldom attacks those who are less than forty years of age.

TREATMENT.

Prompt and vigorous measures are to be adopted at the very onset. The patient should immediately be bled until fainting is produced, and repeated if necessary, until the violence of the inflammation abates. The bowels must be opened by glysters, and as soon as he can swallow, a brisk cathartic of fifteen or twenty grains of calomel should be given, and repeated in doses of from five to ten grains every third hour, or even in larger doses if the rising of the inflammatory symptoms should require it. A weak solution of emetic tartar in water, given in small doses to nauseate the stomach, is very valuable in reducing the inflammation ; but it must not be increased so far as to excite vomiting, as this would increase the inflammation. Leeches to the throat are likewise beneficial, and when they are taken away a blister on the same place will have a good effect.

CHRONIC LARYNGITIS.

THERE is a chronic or slow lingering inflammation of the larynx, which is more common than the acute of which I have just been speaking. It continues sometimes from three to twelve months, and begins by pricking pains in the throat, cough, difficulty of breathing, and a long inspiration or drawing of the breath, with a singular noise, very much like that which happens in the croup. An expectoration of ropy mucus takes place, hoarseness, pain in the side or breast, and a slow hectic fever. It is attended with a hot skin, dry tongue,

quick pulse, and costiveness of the bowels. The breathing at length becomes more and more difficult, and the patient finally dies from actual suffocation.

TREATMENT.

It is relieved for a time by frequently applying leeches, or blisters, to the throat. Small doses of calomel, (cicuta oison hemloc) and opium, are generally recommended with a view to produce an alteration in the system; but the truth of the matter seems to be, that it is easier for doctors to describe the symptoms of this complaint, than to cure it.

CHAPTER VII.

PNEUMONIA.

PNEUMONIA is an acute inflammation occurring in any of the parts within the thorax. These all arise from too great a flow of blood to the part, and by distending the small vessels produce the pain; consequently the object is to lessen the quantity of blood, and by blisters and stimulating drafts to draw the blood to other parts of the body.

PLEURISY.

THE four following symptoms characterize the various forms of inflammation, fever, pain of the side, difficult breathing, and cough. In pleurisy there is an acute pain generally of the left side, breathing increases the pain, is short and hurried, particularly when lying on the side affected, the cough is at first dry, the pulse frequent, strong, and hard, the tongue is covered with a thick fur, and thirst, restlessness, hot skin, scanty and high colored urine; attended with urgent fever is characteristic of pleurisy.

CAUSES.

This is generally caused by cold; any thing that obstructs perspiration as exposing the body suddenly to cold when in a state of perspiration, or very warm; and is produced by any thing that increases the circulation, and by the use of *ardent spirits*.

TREATMENT.

In all acute thoracic inflammations, bleeding is the main anchor of our hope. The blood should be drawn off from a large orifice ; physicians have always been struck with the instantaneous relief which follows the taking of a quantity of blood (say a pint) in a few seconds ; and the subsequent debility is not so great as follows the taking half the quantity in triple the time. On standing, the blood is covered with buff, a substance resembling starch, (this appearance blood exhibits in all inflammations, and in pregnancy.) Cathartics of salts will in general be best, but any others may be used. Blisters must be applied to the side, and if the pain continues they may be applied to the arms. The bleeding and physic must be repeated once in twenty-four hours, or oftener if the symptoms are urgent until the patient experiences relief. The fever must be treated as directed in inflammatory fever, give nitre, tea-spoonful salt petre in a tea-cupful of cold water in dose of table-spoonful once an hour, or tea-spoonful spirits of nitre once an hour, or a weak solution of tartar emetic, tea-spoonful once an hour ; or one grain emetic tartar, two grains ipecac every hour. This determines the blood to the surface of the body and relieves the pain. Cataptasms of mustard to the hands and feet favor this object. To relieve the troublesome cough and promote a raising, let the patient drink of any of the mucilages or expectorants mentioned under their respective heads ; such as liquorice stick or ball half an ounce ; two table-spoonfuls oxymel of squills, one ounce gum arabic, half an ounce gum ammoniacum, seneka snake root half an ounce, one pint boiling water, give a table-spoonful as occasion may require. Tea of slippery elm bark, small doses of solution of antimony in flaxseed tea or a solution of gum arabic, &c. &c.

INFLAMMATION OF THE LUNGS, OR PERI-PNEUMONY.

SYMPTOMS.

THIS is characterized by fever, difficulty of breathing, cough and pain under the breast bone, and betwixt the shoulders a sense of fullness and tightness across the chest, great anxiety, restlessness, loss of appetite and sleep, quick, hard pulse, the breath is hot, the tongue is covered with a yellowish fur ;

urine turbid. The free passage of the blood through the lungs being obstructed, the veins of the neck are distended, the face swollen, with dark red upon the cheeks and about the eyes. The pain is aggravated by lying on the side most affected, and generally the patient prefers lying on his back.

When the mucous membrane lining, the large branches of the windpipe that terminate in the lungs, is affected by acute inflammation it is called acute bronchitis, the most urgent symptom of this form is tightness about the chest, respiration is hurried, and accompanied by wheezing in the throat, and the cough is from the first attended with some degree of expectoration.

A copious and easy raising of mucus marks the decline of the inflammation, and it is not unfavorable if the spittle is tinged with blood. A cream like deposition in the urine and a free warm perspiration are equally favorable, but if the patient be very weak the expectoration may exhaust him, it being in greater quantity than he can raise; this is called effusion.

The termination of peripneumony are by vomica, or abscesses occasionally, these may remain for years without producing fatal consequences, and if they are in a person of strong habit of body will frequently heal; and by gangrene (sloughy, mortified, abscess,) this seldom occurs and cannot be detected during life; and hepatization or hardening of the lungs, this is produced by coagulaque lymph, which is thrown out by the vessels of the substance of the lungs.

CAUSES.

Inflammation of the lungs is most commonly produced by cold and sudden changes of weather; it is also occasioned by other diseases, such as measles, small pox, catarrh, hooping cough and occasionally rheumatism and gout; and is produced by severe exercise, as loud and long speaking and also by the use of ardent spirits.

TREATMENT.

The structure of the lungs is so delicate that it will not bear acute inflammation many hours before the important functions are destroyed, or the foundation for consumption laid.

The antiphlogistic treatment must be adopted with promptness and energy to produce resolution, the only safe termina-

tion. The patient must be bled freely from a large orifice, and repeated every few hours until it produces relief. Children, no matter how young, must be bled if a vein can be found. I am in the constant practice of following blood letting with an emetic, ten grains tartar emetic in half pint warm water, and give two table-spoonsful every ten minutes until it operate, to children in the same manner give fifteen or twenty grains ipecac; this I follow up with a cathartic of ten grains of calomel, and table-spoonful of castor oil, (proportioned, however, to the age of the patient,) or some other active physic. When an emetic cannot be given the calomel and oil must not be omitted. As a substitute for bleeding in cases of children, I use small and frequently repeated doses of solution of tartar emetic, after evacuating the first passages.

Refrigerent medicines may be employed at the same time, as, twenty-five grains nitre, half pint water acidulated with lemon juice, give a table-spoonful once in two hours, or spirits of nitre, &c. The best medicine in use perhaps for these thoracic inflammations is *asclepias decumbens* or pleurisy root, (see this in dispensatory,) a half a tea-cupful of the infusion is given every two hours. The oxymel of squills, gum arabic, liquorice, snake root, gum ammoniacum, &c. must be given to promote expectoration. Blisters are indispensably necessary, and must be applied early in the complaint *betwixt the shoulders*, to the arms and breast. In very young children blisters are too severe, and we must substitute cataplasms of mustard, or paper dipped in vinegar and sprinkled over with fine pepper. When the breathing continues difficult, the use of the tincture of digitalis in dose of six to ten drops every three hours, gradually increased, (dose from one to five drops for children.) When the inflammation abates and the pain subsides, the patient must be supported by tonics and a nourishing diet. When it puts on a typhoid form it must be treated by gentle emetics and cathartics, and on the same plan as other typhoid forms of fever. (This variety is called *pneumonia biliosa*.)

PERIPNEUMONIA NOTHA.

WHEN pleurisy occurs in the debilitated, the old or the phlegmatic, it is known under the name of bastard pleurisy or *perepneumonia notha*.

SYMPTOMS.

Cold and hot alternately, acute pain in the head, constant cough, quick and difficult respiration, cheeks swelled, eyes slightly inflamed, intermitting pulse, sickness at the stomach, giddiness, general lassitude and pains in the chest, characterize what is called subacute bronchitis.

Chronic bronchitis is attended with frequent pulse, furred tongue, pain in the side, or head, cough, slight difficulty of breathing, increased by exercise, and cold extremities.

I name these because they are generally noticed by physicians; but it is of no consequence, the treatment is the same as in inflammation of the lungs; proportioned to the age and constitution of the patient.

CONSUMPTION.

Is a chronic inflammation of the substance of the lungs. It most generally occurs in those of a scrofulous disposition or habit. The scrofulous disposition is known by a clean fair skin, bright eyes, white teeth, delicate rosy complexion, sanguine temperament, great sensibility, thick lips, and large veins. Persons who are very small around the breast, that is, those of a narrow chest, and prominent shoulders, are also more liable to this disease than others.

SYMPTOMS.

It begins with internal heat, uneasiness and pain in the breast or side, increased by exercise, with a quick pulse, dry tickling cough, husky dryness of the palms of the hands, with a slight flush of fever which is worse towards evening and better in the morning; the bowels are generally costive, and there is an increase of high colored urine, which on cooling deposits a large quantity of reddish or soapy sediment. Spitting up fresh frothy blood at length takes place; the cough becomes more and more troublesome, with night sweats, and an uneasy dull heavy pain is now seated in the left side, or breast. The appetite is good, but the flesh is fast wasting away. Taking a long breath begins to increase the pain, and the matter or pus now raised up in coughing, appears in round lumps of a straw color, and sinks in water. The mind is frequently even stronger and more discriminating than it is in health, but his judgment is generally erroneous on one sub-

ject ; for let the danger be what it may, he is full of hope and enjoys himself in the delusive anticipation of approaching health. The patient sometimes dies from extreme weakness ; sometimes from the bursting of an abscess, or the rupture of a large blood vessel of the lungs ; but most generally he is finally suffocated by the accumulation of pus in the bronchia.*

CAUSES.

Besides the scrofulous habit and particular formation of body already mentioned, which predispose to consumption, some of the exciting causes are hooping cough, measles, small pox, pleurisy, intemperance, violent passions, playing upon wind instruments, and every thing that has a tendency to induce a weak inflammatory state of the lungs.

TREATMENT.

By physicians both of the past and present time, it is generally pronounced incurable ; but in order to palliate the symptoms and give temporary relief, the common practice in the first stage of the complaint is to bleed in small quantities two or three times a week, according to the force of the pulse. Blisters to the breast and back are likewise recommended. Small doses of emetic tartar to promote expectoration and perspiration, by nauseating the stomach ; digitalis or foxglove (see dispensatory) to lessen the force of the blood in the arteries ; and cooling drinks of nitre or cremor tartar to moderate the general fever, are also directed. After the inflammatory symptoms are reduced, small doses of calomel are sometimes given until the gums begin to be sore, and the bowels are to be kept in good order by some gentle laxative, such as oil, manna, magnesia, &c. Other expectorants (see dispensatory) may be used instead of the emetic tartar. The night sweats are to be checked and the system supported (so far as it can be done without increasing the fever,) by the use of lime water, elixir of vitriol, tar water, port wine, peruvian bark, &c. (see dispensatory.)

The dress should be regulated according to the changes of the weather, and a pure air, with moderate exercise is to be advised. In the first or inflammatory stages, the *diet* should be light and cooling, such as milk, buttermilk, rice, arrow root, sago, ripe fruits, and vegetables. But in the latter sta-

* The windpipe when it branches into the lungs.

ges a more nutritious diet is necessary, and the patient may eat fat meats, raw oysters, and whatever else he likes, and finds to be easy of digestion. Issues and setons are beneficial in this disease. Dr. Mudge cured himself by keeping constantly open an issue between his shoulders of fifty peas ; and by using at the same time a milk and vegetable diet. Sulphur mixed with peruvian bark is highly recommended. Another plan is, to mix eight ounces of vinegar with the same quantity of rain water, sweetened with sugar, the whole to be taken during the course of twenty-four hours, with a light vegetable diet, and only two meals a day. Inhaling the vapors of tar has a good effect. One ounce of subcarbonate of potash is to be added to every pound of tar, which is then to be placed in a vessel over a spirit lamp and boiled slowly, so as to prevent burning.

The lichen islandicus or iceland moss, has been highly celebrated for curing consumptions. It affords a nutritious mucilage, which is bitter and very strengthening to the stomach. Whatever doubts there may be with respect to its being an infallible remedy, one thing is certain, it can do no harm to try it. The method of preparing and using it is, to boil an ounce or an ounce and a half of the lichen slowly for fifteen minutes in a quart of milk, and drink a tea-cupful frequently in the course of the day ; or two drachms of the moss may be boiled in a pint of milk for ten minutes, and used for breakfast and supper. If milk disagrees with the stomach, water may be used instead of it, adding two drachms of sliced liquorice root about five minutes before it is done boiling, and a tea-cupful may be taken four times a day.

PERICARDITIS, OR INFLAMMATION OF THE PERICARDIUM.

THE pericardium is that membranous sack or bag which encloses the heart. As a primary affection, it is very seldom that the heart itself is ever inflamed.

SYMPTOMS.

Besides the inflammatory symptoms which are common to other diseases, inflammation of the pericardium is known by pain in the region of the heart, or pit of the stomach, like a suffocating weight, and extending to the right side ; it is at-

tended with palpitation and violent throbbing of the heart and arteries. Noise in the ears, giddiness, sighing, and great anxiety of countenance, are common; he breathes by catches or starts, and is obliged to draw in his breath very gradually. Breathing is frequently so difficult that the patient apprehends immediate death. There is generally a dry incessant cough which, is increased by pressing on the pit of the stomach; the pulse has a harsh jarring feeling, and finally becomes irregular; the tongue is white, and the whole body is covered with a copious perspiration.

CAUSES.

Sometimes it is occasioned by cold, but more commonly it is caused by the metastasis of acute rheumatism. (The word *metastasis* signifies the translation or changing of a disease from one place to another. When rheumatism changes its place and settles on the pericardium, it produces inflammation of the pericardium; and this inflammation of the pericardium is therefore caused by the metastasis of that rheumatism.) Persons of a broad chest and plethoric habit of body are supposed to be more liable to this disease than others.

TREATMENT.

The treatment must be conducted on the general plan of reducing inflammation. Blood should immediately be taken from the arm to as great an extent as the patient can bear. A dose of calomel and jalap, or of some other active physic is then to be given. Cupping, or leeches over the part affected, with warm fomentations are proper; and afterwards, blisters may be applied. Nitre, and small doses of ipecac, or emetic tartar should also be given every hour or two, in order to assist in reducing the fever. If the patient cannot bear much bleeding, five grains of calomel mixed with three of emetic tartar may be administered every two or three hours; and at night a portion of Dovers powders, (see dispensatory) will allay the irritation of the cough and procure sleep. As the patient begins to get better, a drain should be made nearly opposite the heart by means of a seton, and kept open a month or two; he should avoid all severe exercise, restrain his passions or any emotion of the mind which would tend to hurry the circulation, and occasionally take a portion of some kind of physic.

CHAPTER VIII.

GASTRITIS, OR INFLAMMATION OF THE STOMACH.

SYMPTOMS.

BURNING heat and acute pain at the pit of the stomach, increased upon swallowing even the mildest drinks. There is a constant inclination to vomit ; distressing thirst ; tossing of the body ; anxiety of countenance ; extreme debility, and sometimes delirium ; the pulse becomes quick and intermitting, the extremities cold, and death soon follows.

CAUSES.

External injury, powerful emetics, poisons, hard indigestible substances, or drinking cold water when the body is much heated by exercise, may produce it. It is sometimes occasioned by the metastasis of other diseases, such as gout, measles, &c.

TREATMENT.

Unless the inflammation can be reduced in the beginning, mortification takes place in a very short time, and the patient will die in spite of medicine. Therefore, a violent pain in the stomach with sickness and fever, should never be neglected. Immediate and copious bleeding is positively necessary. The pulse may appear to be small ; but this must not be regarded, for it will rise again immediately after bleeding. As soon as possible after bleeding let a barrel or half hogshead be filled with warm water, put the patient into it, and cover the top with a blanket ; keep him in as long as he can bear it conveniently, then wipe him dry with warm woollen cloths, and put a large blister over the stomach. As nothing can be borne on the stomach until sometime after the inflammation is abated, it is necessary that the bowels should be evacuated by injection, and that water gruel, or weak broth with the addition of sweet oil and a little nitre, should be given the same way for nourishment. When the patient is so far recovered as to be able to bear any thing on his stomach, a brisk cathartic should be given to clear out the bowels

effectually ; his food should then be of the lightest kind, and his drinks may consist of barley water and the mucilage of gum arabic.

INFLAMMATION OF THE BOWELS OR INTESTINES. (ENTERITIS.)

SYMPTOMS.

TENSION, and acute pain over the whole abdomen or belly, but more especially around the naval, and the bowels are very sore to the slightest touch. There is a hard, small, and quick pulse ; great debility, anxiety, thirst, vomiting, and obstinate costiveness. As the pain increases, the bowels by a kind of spasm seem to be drawn together into lumps, and the urine is voided with great difficulty and pain. If not attended to immediately, it often ends in mortification in the space of a few hours from the commencement.

CAUSES.

They are very much the same as those which induce inflammation of the stomach. Or it may be occasioned by rupture, colic, dysentary, worms, by cold applied to the bowels, or by long continued costiveness.

TREATMENT.

Whatever we do now, we must do quickly, for there is no time to lose. The treatment is nearly the same as that of inflammation of the stomach ; we should bleed immediately, give an injection (see dispensatory) to evacuate the contents of the bowels, and put the patient into a bath of warm water as directed in inflammation of the stomach ; then apply a large blister to the belly, and the bloating of the bowels must be kept down by promptly repeating the injections as often as may be necessary ; and as soon as the soreness and inflammation abates, a dose of castor oil and calomel, or of some other physic, should be given by the mouth in order to clear out the whole intestinal canal effectually ; and after its operation, a dose of laudanum should be given either by the mouth, or by injection, in order to allay irritation and give sleep to the patient.

But when the complaint does not begin very violently and the bowels are not extremely sore, it will be safe to give by

the mouth a small dose of physic in the very beginning. Fresh olive oil may be given by the mouth in dose of a table-spoonful, in cases where the soreness of the bowels will not bear any thing else to be given in that way. After the disease shall have been removed and the patient becomes convalescent, he must be very careful of himself for some time, by making use of some kind of light diet which is not flatulent or windy, and by avoiding all irritating causes, such as cold, severe exercise, &c., for if a relapse should come on, there would be hardly a possibility of saving the patient.

INFLAMMATION OF THE LIVER. (HEPATITIS.)

THERE are two kinds, the *acute* and *chronic*.

SYMPTOMS.

The acute is marked by a pungent pain of the right side, rising to the top of the shoulder, something like that of the pleurisy, attended with considerable fever, difficulty of breathing, dry cough, and often bilious vomitings.

CAUSES.

The application of cold, external injuries, and violent exercises; sudden changes in the weather, especially cold nights after very hot days; sitting on the damp ground, or in a stream of air when the body is heated; drinking distilled spirits, concretions in the liver, &c. It may also be occasioned by long continued intermittent and remittent fevers.

TREATMENT.

Acute inflammation of the liver is treated by copious bleeding at first, followed by fifteen or twenty grains of calomel mixed with twenty or thirty grains of jalap, or with a table-spoonful of castor oil. A large blister must then be applied to the side, and small doses of ipecac or of emetic tartar to nauseate the stomach and cause a moisture on the skin, must be remembered. After this, frequent doses of calomel and rhubarb to physic off the bile, are absolutely necessary.

Chronic, or slow inflammation of the liver, gives a yellowish, unhealthy complexion to the features; there is flatulence, loss of appetite, a dull pain on the right side in the region of the liver, and extending to the right shoulder, or sometimes to

the left, and between the shoulders. The patient has some fever which is worse at night, and attended with much debility and oppression. The urine deposits a red sediment and ropy mucus, and the stools are generally clay colored. The eyes grow dull, the body emaciates; there is a sense of fulness and swelling of the right side, difficult breathing, and the cough is aggravated when the patient lies on the left side.

TREATMENT.

Calomel in doses of two or three grains should be taken every night until the gums begin to be sore; the use of it may then be discontinued for a while, but after a few days, it should be resumed. Or, the blue pill (see dispensatory) may be taken in the same way for the same purpose, that is, to restore the healthy action of the liver. Or the mercurial ointment (*unguentum hydrargyri*, see dispensatory) may be rubbed on the side until the mouth becomes sore. In the mean time the bowels should be moved occasionally by a dose of rhubarb and soda, or of bilious pills, (see dispensatory.) Either a blister or a seton should be kept open on the affected side, and as the febrile symptoms abate, the use of tonics should at the same time be adopted; such as quinine, or peruvian bark and snake root, or columbo root in powder and iron rust (see disp.) mixed together; the common dose should be taken three times a day. Those of a scrofulous habit, or such as are weak and debilitated, may take nitric acid instead of the calomel or mercury. One or two teaspoonfuls of the acid must be diluted with a quart of water, so as to make it considerably sour. The dose should be small at first and frequently repeated, but the patient will soon be able to take the whole of the quart in the course of the day, or even more; and this medicine should be continued, the same as calomel, until the mouth becomes affected. The patient's food should be easy of digestion, and a change of climate, moderate exercise in the open air, will be agreeable and salutary. Affections of the spleen or ague cakes, are treated in the same manner as chronic inflammation of the liver.

CHAPTER IX.

ACUTE RHEUMATISM.

SYMPTOMS.

RHEUMATISM is an affection of the extremities and external coverings of the body, having its seat in the muscles and tendons, and is characterized by pain, stiffness and swelling of the joint, attended with fever when the disorder is violent. The fever is ushered in by chills which are followed by the usual symptoms of fever, and is easily distinguished by great pain, swelling of one or more joints, with difficulty to move them, and redness and pain upon touch. The pains are worse at night, and frequently shift from one joint, or part of the body, to another, and sometimes the use of the joint is destroyed. The skin is generally in a state of perspiration, the tongue is always loaded, there is great thirst, and a constive state of the bowels. The brain is seldom or never affected. The inflammation is liable to shift, as before observed, from one part to another, this is called metastasis; the heart and stomach are most liable to be thus affected, and it is this liability and result which constitute the principal danger.

CAUSES.

Cold with moisture, particularly where long applied, is its most common if not only cause; hence it is generally attributed to sleeping in damp beds or on the ground, putting on of damp clothes, and working in damp situations.

TREATMENT.

Large and repeated bleedings are necessary in the commencement, and at any time if there is much pain and a full pulse, this must be followed with a smart dose of calomel; and to abate the fever and thirst let the patient drink freely of flax-seed tea, balm tea, barley or rice water, with a little nitre dissolved in them; and small doses antimony (tartar emetic) or Dover's powders to promote diaphoresis. A blister applied so as to cover the whole of the affected joint, is one of our most powerful and certain cures. These means must be repeated until the inflammation subsides. The pain must then be allayed by opium or laudanum. The system may now be supported by bark and wine and a generous diet.

CHRONIC RHEUMATISM.

THIS is of constant occurrence and is characterised by pain of the joints, aggravated on motion, stiffness of the joints, and swelling of the several structures about them. It is distinguished from acute rheumatism, by the absence of fever and redness of the affected part. The pain shifts from joint to joint, and frequently the joints are permanently enlarged and distorted.

TREATMENT.

There are no certain rules laid down for the treatment of chronic rheumatism. Attention must be paid to the state of the constitution. In some forms, particular in lumbago and sciatica, cupping will be of great benefit; and if the pains are very severe blood may be taken from the arm. When it is attended with chills and sickness at the stomach, an emetic of ipecac or a cathartic must be given, followed by sweating medicines, as this sometimes gives immediate relief. Warm and stimulating applications must be made to the parts, such as spirits of turpentine, oil of sassafras, volatile liniment, tincture of cantharides, &c.; and frictions with flannel or a flesh brush over the joint. Colchicum is very highly spoken of, its dose is from five to fifteen drops of the tincture once in three hours; we should however, begin with about five drops and increase gradually until it produces slight nausea, dizziness and loss of appetite. If there is torpor and debility, stimulants and tonics of various kinds will be proper.

Mercury given so as to affect the mouth will frequently effect a cure. Where it can be traced to cold while under the operation of mercury, small doses of salts or cream of tartar, or sulphur, or decoction of sarsaparilla, and guaiacum, will generally be attended with success. Warm bathing should always be resorted to. In all forms of rheumatism the pain when violent must be allayed by opiates.

I have always found blisters the most effectual remedy, when then affection was confined to a joint. *Sciatica*, is rheumatism in the cellular envelope of the great sciatic nerve, (which see.) *Lumbago*, is rheumatism of the loins; these are treated in the same manner as the above.

GOUT. (PODAGRA.)

SYMPTOMS.

A paroxysm of the gout sometimes comes on suddenly without any previous warning; frequently, however, it is preceded by loss of appetite, costiveness, torpor and lassitude over the whole body; great fatigue after the least exercise; the feet and legs are colder than usual, attended with prickling, or a sensation of numbness; and the day before the attack the appetite is generally better than common. The patient awakes from sleep with a violent pain in the great toe, or perhaps, in the ball of the foot, the heel, the whole foot, or the calf of the leg. The pain resembles that of a dislocated bone, with a sensation as if cold water was poured upon the part; the feet are often swelled and inflamed, and he cannot endure the least motion without suffering intolerable pain. But the most dangerous symptom that accompanies gout is metastasis; for it is very apt to leave the toes in a twinkling, and seize on the brain, heart, lungs, bowels, or stomach, without any ceremony at all, not even the politeness of saying "by your leave."

CAUSES.

Hereditary predisposition; stimulating luxurious diet; habitual indulgence in wine; inactivity of body; intense application to study; excess in venery; night watching; cold; severe exercise; and sudden changes in the manner of living, from low to high living, or from a full to a very spare diet. It is very seldom that gout is permanently cured.

TREATMENT.

In all cases which are attended with general fever, bleeding, according to the strength of the patient, will always be found necessary; and the bowels should be evacuated by some active cathartic: ten grains of calomel, twenty of jalap, and three of gamboge, mixed together, will answer the purpose; and afterwards a gentle physic may be used with advantage, such as castor oil, sulphur, cream of tartar, rhubarb, senna, &c. While the inflammatory stage continues, cooling diaphoretic medicines such as nitre, ipecac, and the like, are useful in exciting perspiration. After the feverish symptoms

are reduced by these means, a blister may be applied to the parts affected, and tonics should then be given, as, quinine, peruvian bark, iron rust, &c. When the gout takes hold of the stomach or any other internal part, the object must be to bring it back to the joint as soon as possible, and for this purpose, stimulating medicines such as ether, laudanum, brandy, sweet flag, red pepper, and ginger, must be given immediately, and frictions on the stomach and bowels with cloths wrung out of hot spirits and pepper, and a hot mustard poultice to the feet, are to be used with industrious perserverance. For *preventing* the gout, *temperance* and *exercise* are two of the most important medicines.

Dr. Ewell relates an anecdote of an English nobleman, who "after twenty years of riotous living awoke one morning in the torments of the gout. As he lay writhing with pain, his servant ran up stairs to him with great joy in his countenance: 'O! sir, good news! good news! there is a famous gout doctor below, who says he will venture his ears he can cure your honor in a week.' 'Ah! that is good news indeed, Tom; well, run my good boy, and put up his carriage and horses, and treat the doctor like a prince.' 'O sir, the gentleman has no carriage and horses; I believe he walked a foot.' 'Walk a foot! what! cure the gout and walk a foot! go down Tom, go down, and instantly drive the rascal out of the house; set the dogs upon him, do you hear? the lying varlet! why if he could cure the gout he might ride in a richer carriage than his majesty.'"

ERYSIPELAS.

SYMPTOMS.

IDIOPATHIC erysipelas commences most usually on the face and legs, but occasionally on other parts of the body. It commences by febrile symptoms of considerable severity, the pulse is frequent, full and hard, and drowsiness, confusion of the head accompanies the hot stage. On the second or third day from the attack of chills, redness and swelling appears. There is distressing heat and tingling in the inflamed surface, and where the face is the seat it swells, and in two or three days the eyes become closed. The disease occasionally goes off by desquamation; but more usually

blisters form, containing a yellowish fluid. The duration is liable to considerable variation, and sometimes towards the latter stages it assumes a typhoid character, and great debility attends the period of recovery, (convalescence, so called familiarly, by the ingenious Dr. —.)

THE CAUSES are not well understood; in some persons there is a strong disposition to it, and in them it is brought on by very trifling causes. It is produced by external injury, debility, unwholesome diet or bad air, a long residence in hot climates, and the use of that favorite beverage, whiskey.

TREATMENT.

The acute erysipelas is to be treated like any other inflammatory affection. Bleeding and active physics, with sweating medicine to keep it out; and the exhibition of bark, wine, quinine, &c., after the inflammation has subsided, constitute the principal treatment. When the symptoms are not urgent, physic, and wash the part affected with a weak solution of sugar of lead. When it happens to the old and debilitated, or to persons just recovering from a fit of sickness, after giving a dose of bilious pills, give the tonics as above directed. When it is translated to the brain and produces delirium, and other symptoms of inflammation of that organ, it must be treated by venesection, blisters and purgatives as in true phrenitis, which see.

CHAPTER X.

HEMORRHAGES.

THESE are produced by the rupture of blood vessels, which may be occasioned by various causes from extreme weakness, or too great fullness of the blood vessels, and may be either from the veins or from the arteries.

OF BLEEDING FROM THE NOSE, OR EPISTAXIS.

THE vessels that ramify upon the lining membrane of the nostrils are very numerous, which have but a thin delicate covering that is easily ruptured. When the bleeding does not

happen from accident, it is preceded by headache, throbbing of the arteries of the temples and neck, flushing of the cheeks, giddiness, and a sense of weight or fullness in the nose.

CAUSES.

Among the causes, pathologists have named both heat and cold, and it is attributable to bodily exertions, particular postures as stooping or laying with the head low, and to the suppression of other evacuations, and in such cases it affords relief to the other symptoms.

TREATMENT.

This seldom requires any treatment, but if it does the patient must use a light diet, and take an occasional dose of salts. In severe cases it will be necessary to bleed and give cathartics, and direct regular exercise, and to give from fifteen to twenty drops of tincture of digitalis, given once in two or three hours, will be useful. An astringent solution such as a strong solution of alum or sugar of lead or of gum kino, must be snuffed, or injected up the nose; and the nostrils must be stopped up with dossils of lint both anteriorly, and posteriorly, dipped in the above solution, and cold water must be applied to the nose and poured upon the back of the neck, or the whole head may be immersed in water; blisters to the back of the neck are also useful. A hog's gut filled with vinegar and introduced into the nose is generally attended with success by pressing upon the bleeding vessel. The patient must be kept cool and in an erect posture: this is all the doctor can do if you send for him. (See this in surgery for the manner of plugging the nostrils.)

BLEEDING FROM THE LUNGS.

SYMPTOMS.

THERE is a sense of feeling, heat, weight, tightness and oppression about the chest, difficult breathing and a short tickling cough. Symptoms of fever are also present, such as shiverings, pains in the back and loins, lassitude, costiveness, a dry skin, and hard pulse; these are subject however, to great variety. The spitting up of blood is commonly preceded by a degree of irritation felt in the throat, and a saltish

taste in the mouth. The blood is of a bright red and frothy, this with the general habit of body and the preceding symptoms will distinguish it from vomiting of blood.

TREATMENT.

This being intimately connected with consumption, it will require a similar treatment. It will only be necessary here, therefore, to point out in a few words the treatment which is recommended, with a view to check the immediate effusion of blood. When the blood is flowing admit cool air, and avoid speaking and all exertion; give cold drinks, and sulphuric acid in the dose of eight or ten drops every hour, and when the patient is feverish it will be proper to let a little blood. A dose of salts must be given and the cold drinks continued, and nitre, tincture of digitalis, and powdered alum, and the sugar of lead three grains, (as much as will lay on the point of a pen knife,) and extract of hyosciamus three grains, and any of the astringents may be given in their common doses, (see astringents,) as kino, catechu, sulphate of copper; with either that is used give a few grains of opium. To relieve the cough give oxymel of squills, and any mucilaginous mixtures, as gum arabic, elm or flaxseed tea, liquorice, &c. Blisters and warm applications to the arms and legs will be proper, these cause the blood to flow to the extremities and of course relieve the lungs. If the patient is of a weakly habit, a contrary course is required and bark and wine will be requisite. From three to five grains of black pepper given every ten minutes is highly spoken of.

CLASS III.

CHAPTER I.

APOPLEXY.

SYMPTOMS.

THIS dreadful complaint may sometimes be prevented, but is hardly ever cured; the premonitory or warning symptoms are therefore more important to be known than those which take place during the fit. And first, the *apoplectic forma-*

tion of body is a premonitory consideration ; a person of a large head, short thick neck, broad shoulders, short stature, florid complexion, with tendency to corpulency, is more particularly predisposed to apoplexy than those of a different *make*. Other premonitory symptoms are, sense of weight and pain in the head, with a feeling as if the head were bound round with a cord or wire ; giddiness on stooping, or on turning the head quickly round ; deafness, ringing in the ears ; blindness, or flashes of light, and other unusual appearances before the sight ; stupor, drowsiness, loss of memory and of temper ; faltering of the speech, twisting of the mouth, falling of the eyelids, numbness or palsy of any part of the body, &c. But it is more frequently the case, that without much previous indisposition, the patient falls down suddenly, deprived of all sense and motion ; he lies like a person in a deep sleep, with difficult and noisy breathing, the blood at the same time continues to circulate as usual. Sometimes the fit commences with sudden and violent pain in the head, paleness, sickness at the stomach, vomiting, and loss of recollection ; he falls down perhaps, appearing like one who has fainted, recovers in a few minutes, and is able to walk ; but the headache continues, and after a few hours he *gradually* sinks into the fit. At other times, the patient is suddenly seized with palsy of one side and loss of speech, which after a while gradually passes into a state of apoplexy.

CAUSES.

The immediate cause of apoplexy is compression of the brain, induced either by an over-distension of the blood vessels, or by the effusion of blood or serum on the brain. Of course, whatever increases the quantity and impetus of blood in the head, will have a tendency to produce it ; such as violent fits of passion, intemperance, tight neck-cloths, exposure to great heat or cold, large doses of opium, external injury, overloading the stomach, stooping down for some length of time, severe exercise, &c., and these causes will be more likely to produce the effect in persons of plethoric habits, and who have the *apoplectic form of body*.

TREATMENT.

By way of prevention, the causes which produce it are to be avoided ; those of a full plethoric habit should be light

and sparing in their diet, and keep the bowels regular. Those of debilitated habits, may use a more nourishing diet, and take strengthening medicines to give tone to the vessels. In the actual paroxysm of apoplexy, the patient, with his head instantly raised, should be placed where he can breathe cool air; and if he be of a robust plethoric habit, a quart or more of blood should be immediately taken from the arm, and repeated in a short time if he should not be relieved. Leeches or cupping on the temples, blisters to the back of the neck, arms and legs, rubbing with hot vinegar, or spirits and pepper, hartshorn applied to the nostrils, hot mustard poultices to the feet, or even searing the soles of the feet with a hot iron, should be tried in order to rouse the system. At the same time, stimulating injections should also be given; and as soon as he can swallow, an active cathartic, as calomel and oil, or jalap, followed by a dose of salts and senna, should be given. If none of these can be made to operate, the croton oil may be administered. One drop is a common dose, but two, three or even four drops at once, may now be taken every hour, until you have given it a fair trial.

If the patient be old, or of a debilitated habit, bleeding from the arm will not be proper; but leeches, or cupping, may be used instead of it; and all other means mentioned here must be thoroughly attended to. If the patient recovers, a seton should be kept open for some time on the arm or back of the neck.

PALSY.

Is a loss of the power of voluntary motion. It is distinguished from apoplexy by its affecting certain parts of the body only, as one side, or the lower half of the body.

SYMPTOMS.

Previous to the attack there is universal torpor, giddiness, a sense of weight or uneasiness in the head, loss of memory, dullness of comprehension, a sensation of something creeping on the body, pain, trembling and a sense of coldness in the part about to be affected. Palsy, if not cured, is finally succeeded by apoplexy; and consequently the

CAUSES,

Are frequently the same as those which produce apoplexy. Or, it may be occasioned by the poisons of lead, arsenic, &c. by injuries to the spinal marrow, extreme debility, and by old age.

TREATMENT.

It is treated the same as apoplexy in those cases which depend on the same cause. In plethoric and robust habits, bleeding will be proper, and the bowels should be kept loose by gentle physic for some time after the symptoms disappear. In weak and debilitated habits every thing that can have a tendency to stimulate the body, and rouse the nervous symptom into action, should be employed. For this purpose, a table spoonful of horse radish scraped, or the same quantity of ground mustard seed may be swallowed three or four times a day, or oftener. The tincture of guaiacum, or volatile alkali (see dispensatory) may also be given in large doses. At the same time external stimulants must not be neglected, such as blisters, dry frictions over the palsied part with a flesh brush, or with flannels wet with oil of turpentine, volatile liniment, oil of sassafras, or tincture of cantharides. In plethoric habits the diet should be of the lightest kind possible—but in weak and debilitated constitutions, the food should be warm and strengthening, and the drink may be of the same nature, such as port wine, mustard whey, ginger tea, or brandy and water.

EPILEPSY, OR FALLING SICKNESS.

SYMPTOMS.

The epileptic fit comes on very suddenly; those who have been subject to it for any length of time are generally warned of its approach sometimes by headache, giddiness of sight, by the appearance of spectres, or of flashes, of light before the eyes; but more frequently, by a creeping sensation or feeling of cold air, which begins at the extremity of a limb and gradually ascends to the head. The patient then falls down suddenly, is deprived of all sense, but not of motion,—for the muscles of the face and of every part of the body are violently agitated; he foams at the mouth, the eyes are turned back and fixed, the teeth gnash against each other, the

tongue is thrust forward and often severely bitten, and the breathing is irregular and laborious. Sometimes the fit continues only a few minutes ; sometimes an hour, or even longer. When the paroxysm goes off it is common for the patient to remain for some time motionless as in a profound sleep ; he then recovers by degrees, but without any recollection of what has happened. There are some variations of its appearance in different individuals ; in some cases the whole system is relaxed ; sometimes during the fit, there is a tonic spasm or constant rigidity of the muscles ; and there have been instances in which the patient is not only unconscious of every thing around him, but remains, during the whole fit, in the same position of body in which he happened to be taken ; sometimes the patient recovers from the fit as suddenly as he was taken ; and it is not always the case that he is perfectly unconscious, for even the nightmare (*incubus*) is a species of epilepsy.

CAUSES.

Hereditary predisposition—intemperance—injuries of the head—irritation from worms—teething—severe fright—or it may be occasioned by suppression of menstruation.

TREATMENT.

When it is preceded by the sensation as of cold air creeping up towards the head, the fit may be prevented by applying a ligature above the part so affected. The causes which produce it should be removed if possible—as, when it occurs in children from teething, the gums should be lanced ; if from worms, they are to be dislodged : or if it be caused by suppression of menstruation, the course of nature is to be restored by the means recommended in that complaint ; if by intemperance, the bottle must be abandoned, &c. When the epileptic paroxysm has actually come on, the patient ought to be placed on a bed in order to prevent him from injuring himself in struggling ; a bit of wood should be put between his jaws so that the tongue will not be in danger, and if he has overloaded his stomach, or has been drinking ardent spirits, an emetic will cleanse the stomach and terminate the paroxysm. Sugar of lead (acetate of lead) may be given after the fit is over in the dose of one fourth of a grain, gradually increased to one or two grains, three times a day, made into pills with bread ; and a small pill of opium should be given

at the same time. Or lunac caustic (nitrate of silver) may be administered in the dose of one fourth of a grain made into pills with bread, gradually and cautiously increasing the dose to a grain. It is said that the complaint has been cured effectually by giving six or eight grains of the flowers of zinc morning and evening. Or the herb called cardamine or ladies smock, in the dose of a drachm three or four times a day, may be tried. But after all, the truth of the story is, that when this disease is once fairly established in the constitution it is not much under the control of medicine.

CHAPTER II.

MADNESS, OR MANIA.

Is a disorder of the mind in which imaginary things are mistaken for those which have an actual existence.

SYMPTOMS.

Sometimes the attack is sudden, violent and unexpected ; but more generally it comes on gradually, and a predisposition to it is manifested, at first, by slight aberrations of mind and oddities of manner ; he is frequently subject to very high or low spirits ; fretful and angry on trivial occasions, distrustful of his best friends, and strongly affected by every emotion or passion of the mind. As these symptoms increase, other mistaken and wild ideas are treasured up as truth in the imagination, until finally the brain is completely turned and the patient is then said to be insane, mad or crazy. If the person be of a sanguine temperament, it is very likely to be accompanied at first by some pain in the head, redness of the face, rolling and glistening of the eye, grinding of the teeth, loud roaring, and violent exertion of strength.

Those of a melancholic temperament, on the contrary, are not liable to high excitements of this kind, but are naturally inclined to sadness, dejection of spirits, &c.

CAUSES.

The most general predisposing cause is hereditary predisposition. In such constitutions it is often excited, and in

others may be acquired by anxiety, grief, love, fanaticism, terror, enthusiasm, disappointed ambition, severe study, intoxication, palsy, masturbation, suppression of the lochia, or of periodical evacuations, &c.

TREATMENT.

The treatment of mania must be partly applied to the mind and partly to the body. In treating the *body*, it is proper, in the *beginning* of the disease where there is much febrile excitement, to take as much blood at once as the patient can well bear, but small bleedings frequently repeated are more likely to confirm the disease than to cure it. Where the complaint has been of long continuance, if there should at any time, be a dangerous accumulation of blood in the head, it is to be reduced either by blisters to the arms, cupping, or by leeches to the back of the neck and temples. For this purpose also, and to evacuate the bile and cleanse the stomach and bowels, purges of calomel combined with some other physic, should be frequently given, and if the strength will admit, in large doses. Emetics sometimes have a good effect. Camphor has been given with great success; and digitalis may be useful from its power of lessening arterial excitement—but other narcotics, and opium in particular, are not to be recommended when there is much fulness of the vessels of the head. But when mania occurs in melancholic temperaments, there is generally a lack of excitement; a more nourishing diet should then be directed; the medicinal remedies may be tonic and even stimulating; the state of the bowels must be attended to, and regular exercise, or even hard labor in those accustomed to it, will be beneficial. In treating the *mind* of maniacs, it is necessary to inspire them with a certain degree of awe, and at the same time to gain their confidence and affection by steadiness and humanity. If they are very obstinate, or should threaten the lives of the attendants, coercion and confinement may sometimes be necessary. If the patient be a man, he submits most easily to a female keeper; if a woman, to a male. Instead of directly opposing any of their extravagant notions, it is better to give way to all their whims, to sympathise in their complaints, to appear to obey their commands; and after thus gaining an ascendancy over them, their minds should be artfully drawn to some other subject, but with as little appearance of design as possible. If he misbehaves, the

crime should be imputed to another person, and thus he becomes ashamed of it. The diet should be chiefly vegetable and such as will keep the bowels open, and the hours of eating, rest, exercise or labor, should be fixed and remain unchanged. The use of the swing is now very generally adopted in cases of mania and is found to be highly beneficial. It often takes away all muscular power, producing vertigo, paleness, nausea, vomiting, discharge of urine, slowness of the pulse, and faintings; which are followed by refreshing sleep, convalescence, and recovery. A hammock or even a common chair in which the person is fastened, may be slung up by ropes to the ceiling; it is now to be turned round until the ropes become twisted, and then by letting it untwist itself, the patient will be whirled round the other way with great velocity. In young, plethoric, and furious cases, it may bring on a fit of the apoplexy, and should not therefore be used until the violence of the symptoms is reduced by bleeding, purging, &c.

ST. VITUS'S DANCE, OR CHOREA.

THIS usually makes its attack between the eighth and fourteenth year of life. The convulsions are preceded for some time by an awkward dragging of the leg, twitching of the muscles of the face, and unsteadiness of the fingers and hands. These are followed by an affection of all the muscles of voluntary action. The hands and arms are in constant motion, the patient can grasp no object, even with the greatest exertion of the will, he walks unsteadily, going as the saying is, one step forward and two back, and is now an object of singular but painful observation. These symptoms vary in violence, and in most cases cease entirely during sleep. As the complaint advances articulation is impeded or suspended, swallowing is performed with difficulty, the eye loses its lustre, and the face is thin and pale. The mind frequently partakes of the bodily disorder, and becomes as weak as in infancy.

With these evidences of disturbance of the brain there are marks of a deranged condition of the stomach and bowels. There is often in the commencement a ravenous appetite, costiveness, swelling and hardness, or flabbiness of the abdomen;

when more advanced it is attended with impaired digestion, offensive evacuations, and wasting of the whole body.

This attacks young boys and girls indiscriminately, and occasionally adults ; it is seldom attended with danger, and in the few cases of fatal termination, it had merged into epilepsy, and probably become complicated with diseases in the head.

CAUSES.

The causes of chorea sancti vitii are not well understood, it is evidently produced by any thing that occasions debility, by long confinement, excessive exercise, improper food, the use of certain metals, as lead, mercury, &c.; frights, suppressed eruptions, teething, worms costiveness, acrid matter in the stomach and bowels ; and by wounds of the tendons and nerves of the brain.

TREATMENT.

The majority of cases of chorea get well in a short time without the aid of medicine. In the early stage, before the bowels have lost their tone, and the accumulation in them is great, gentle purgatives repeated as occasion requires, will generally effect a cure. When the disease is farther advanced, active physic must be persevered in, as calomel, jalap, rhubarb, scammony, senna, bilious pills, &c. in their usual doses (see dispensatory) until the discharges are natural, once in two or three days will generally be often enough. The cathartic should be followed by a pill of opium. And in weak constitutions between the times of giving physic, we should give tonics of columbo, camomile, and peruvian bark, steeped in water, and wine or other spirits added, to keep it from souring. Worms frequently produce it, or continue it when produced ; it will therefore be proper to give occasionally twenty or thirty drops oil of turpentine on sugar or in honey, or a quarter of a tea-spoonful cowitch mixed in molasses, about an hour before giving the physic, that it may have time to operate on the worms before carried off, or pink or any of the worm medicines may be given.

The food must be light and nourishing, and the patient must exercise in the open air. Cold bathing is one of the most powerful means, and in languid states of the system frequently acts like a charm. Leeches to the temples, and along the back is recommended. The preparations of iron or steel

are among the most powerful tonics, and should be given especially to young ladies, as this produces and regulates their periodical turns, which with them is frequently all that is requisite to cure the disease ; and if nature once establishes this, they generally get well without medicine ; and when it attacks girls from ten to fifteen, the means recommended to regulate that habit must be used, as this irregularity is most likely the cause. The sub-carbonate of iron and pulverised columbo, each five grains, may be given every two hours, or the muriatic tincture of iron ten or fifteen drops in three table-spoonfuls of water, will have a good effect ; and these may also be given to patients of either sex or any age, that are laboring under the disease, for their principle virtue is that of a powerful tonic. The oxyde of zinc, in doses of three grains four times a day, is also spoken of by medical writers. The power of habit frequently keeps up the disease, this morbid chain must be broken by an emetic ; blisters to the arms and below the loins ; in addition to the above assafoetida and other anti-spasmodics have been used with success, and from its resemblance to, and frequent connection with hysterics, they should always be tried. The arsenical solution (which see) may be given, to a child ten years of age in dose of five drops three times a days. When the disease proves incurable it generally ends in epilepsy, or mania, but more frequently in idiotism.

CHAPTER III.

LOCKED JAW, OR TETANUS.

SYMPTOMS.

THIS first symptom is a stiffness about the back of the neck, increasing to pain so as to render all motion of the head painful and difficult. In a few mild cases the complaint advances no further, but most generally the root of the tongue, the throat and breast, are next affected, and the muscles of the jaw are now seized with a rigid contraction, or spasm, in consequence of which the jaws are finally closed or locked together.

If there is now a sense of pain at the pit of the stomach, darting backward to the spine, the patient may expect that

the muscles of his back are shortly to be seized with spasms, by which the body is bent violently backwards. The muscles of the fore part of the body are soon attacked in the same manner, and contract so powerfully as to counterbalance the back muscles, by which the body is brought back again, with horrible and excruciating torture into a straight and immovable position. The sufferings of the patient becomes greater than words can express, and violent convulsions put an end to his misery and life together.

CAUSES.

Tetanic affections are occasioned either by exposure to cold, or by some irritation of the nerves in consequence of local injury, by punctures or wounds from rusty nails, splinters, pieces of glass, &c. And wounds that tear and lacerate the tendons and muscles produce tetanus, and especially in hot climates these prove a never failing source of these complaints. Any blunt instrument that tears the parts is much more likely to produce tetanus, than a sharp instrument that divides the nerves and fibres completely. Tetanus from cold occurs generally within three or four days from exposure, and from an injury about the eighth day.

TREATMENT.

Opium is the remedy on which we are to place our chief reliance, and we must begin its use as soon as the symptoms appear. It must be given in very large doses and frequently repeated, for the system will now resist the operation of that quantity of almost any medicine which at other times would destroy life. We should begin with thirty drops of laudanum, or three grains of opium, and repeat it once in two hours or oftener until it produces some effect. We must bear in mind that there is every moment danger of the jaws becoming closed, and we must therefore push our remedies before his difficulty occurs, and if it does arise we must give laudanum and other medicine by injection, and strong laudanum may be bathed into the parts where most pain is felt. An active purge of one fourth of a tea-spoonful of calomel with a table-spoonful of oil or some other active physic must be given in the onset, and repeated at intervals of two hours until it operates. Salivation must be produced if it can be, for which calomel should be rubbed upon the gums, and mercurial ointment on the sides, a half tea-spoonful strong ointment

may be rubbed on, once in four hours. An emetic in the commencement will sometimes effect a cure. The patient should always be bled largely, and put into a warm bath, a hogshead of warm water is all that is requisite. Cold bathing is also recommended. Prusic acid, two drops every two hours, in water, with blisters and issues upon the spine is highly spoken of. In salivating, wine may also be given freely. The employment of wine, bark, gin, brandy, and aromatic (spiced) cordials, in large quantities are highly spoken of, and may be tried; at the same time the opium, musk, camphor, and the other anti-pasmodics must not be neglected, for the probability is, that these have affected the cures which are attributed to other medicines. The disease will in most instances prove fatal. These are the principal means of constitutional treatment. (For particular treatment when produced by wounds, see tetanus, in surgery.)

THE BITE OF A MAD DOG, OR HYDROPHOBIA.

Hydrophobia, from water, and to fear, the dread of water, rabies canina, canine madness.

THIS affection belongs properly to the canine genus, viz. dogs, foxes, and wolves; to these it is natural and with them arises spontaneous; and is communicated to others of the same species, and to all animals by bites or the application of the poison to a wounded (abraded) surface.

SYMPTOMS.

When a *dog* is affected with madness he becomes dull, and hides himself, seldom barking but making a murmuring noise, and refusing all kinds of meat and drink; he flies at strangers, his head and tail hang down, he walks as if overpowered by sleep; a bite at this period is dangerous, but is not so apt to bring on the disease as at a later period. At length the dog begins to pant, his tongue hangs out, his mouth is open and discharges a large quantity of froth. Sometimes he walks slowly, and then runs suddenly forward, his eyes are dull, watery and red, he grows thin and weak, and attempts to bite every thing that comes near him. In this stage the animal seldom lives over thirty hours, and the bites toward the end of his existence are the most dangerous.

In the human species the symptoms attendant upon the bite of a mad animal are (sometime after the bite, frequently after the bitten part is quite well,) slight pain in the part, attended with itching occasionally, but generally resembling a rheumatic pain. Then comes on wandering pain, uneasiness, and heaviness, disturbed sleep, frightful dreams, restlessness, sudden startings, and spasms, sighings, anxiety and a love for solitude. These increase daily, the pains shoot from the place which was wounded all along up to the throat, with a sensation of choking, and horror at the sight of liquids, together with a loss of appetite and constant tremor. Although the patient cannot swallow water or any fluid, he can take solid substances with tolerable ease.

A vomiting of bilious matter soon comes on with hot fever, great thirst, dryness and roughness of the tongue, hoarseness, and a discharge of viscid saliva from the mouth, together with spasms of the genital and urinary organs; his respiration is laborious, but so long as he retains the power of speech his answers are distinct, and his judgment unaffected. In a very few instances delirium arises and ends the sufferings of the patient. On dissection there are marks of inflammation in the throat and stomach; and an effusion of blood in the lungs, and an appearance of inflammation in the brain.

There is no known cure for this dreadfully alarming malady. To keep from being bit is a certain *preventative*, and to be bit is almost as certain *death*. Books, newspapers, and almanacs, are frequently filled with cures for the bite of a mad dog, and almost every quack boasts of his ability to cure hydrophobia, but the means on which we are to place any reliance is to excise, cut the part completely out, and be sure that it is done as deep as the tooth has penetrated, and do not wait for the doctor to come; a razor or any sharp knife, and a determination to do it, is all that is necessary; a moment lost may be lost forever; the wound must be filled up with table salt or fine lime, or washed out with a strong solution of pearl ash. And though this may be neglected or impracticable in the onset, it may be practiced at any period, but with less hopes of success, for it may be that the poison is carried through the circulation, if so (uncertain) then physic, salivation, and bleeding are our principle reliance, but both of these plans must be adopted at the same time, and then if the poison produces its effects on the nerves, the incision will divide the nerves, and remove the poison and.

thus prevent the irritation upon the nerves and the danger of absorption, and if in the circulation the cathartics and salivation may (doubtful) drain the system of, or neutralize the poison. When the part cannot be cut out, it must be burnt with a hot iron, and the wound kept open for some time by spirits of turpentine or mercurial ointment. Opium must be given in large and frequently repeated doses as in tetanus. The patient generally dies betwixt the eighth and twelfth day from the appearance of the symptoms.

PAINFUL AFFECTION OF THE NERVES.

CALLED ALSO, NEURALGIA, AND TIC DOULOUREUX.

THIS mostly attacks the nerves of the face, but the nerves of other parts are occasionally affected similarly. When it affects the face, it has its seat chiefly in one or more branches of the fifth and seventh pair of nerves, which are spent upon the face.

SYMPTOMS.

The pain is confined to one side of the face, and comes on in paroxysms, which in duration and frequency depend much on the length of the standing of the complaint. It is excited to extreme violence by the least exertion of the body, by speaking, by the slightest touch, or by even a breath of wind. When the affection is fully formed the pain exceeds any other variety of human suffering, and is equally severe by day and by night. It is attended with convulsive twitchings of the muscles of the face, which press upon the observer a sense of the pain which the patient experiences. Its natural tendency is to fix itself in the system for life, and though it is the most excruciating pain that affects the human body, it seldom injures the constitution materially. Its causes are not known; it probably arises from the same causes that produce tetany.

TREATMENT.

The means in common use for this disease are narcotics and nervines, local irritants, and the division of the affected nerve. Of the narcotics the principal are opium, cicuta, (hemlock,) castor, and belladonna. Opium is the principal

and must be given in dose of two grains once in two hours until it has effect. The other narcotics may be combined with opium or given alone in their usual dose. The carbonate of iron is a most valuable medicine in this disease, it allays irritability, and gives tone to the system; it must be given in dose of a tea-spoonful, mixed in molasses, every three hours. The peruvian bark, quinine, and liquor arsenicale in their usual quantities will have a good effect. Leeches and blisters must not be neglected. Other irritating and stimulating applications, as tincture of spanish flies, volatile lineament, &c. may be applied to the part.

A case lately come under my observation which I treated by bleeding from the arm, cathartic of fifteen grains calomel, twenty grains of jalap, followed by three grains opium, four grains castor, two grains camphor, three grains ipecac, repeated in two hours, in which time the patient was perfectly relieved. But, by the by, I did not weigh the above medicine, I done just as you can do, give a pretty large dose of physic, (no matter about bleeding,) after it operates make a pill of opium about as large as a field pea, take as much again castor, half as much camphor, and as much ipecac as will lay on the point of a penknife, and repeat this every two hours until it gives ease, put a blister as near the seat of pain as may be, when the pain is removed give iron rust, &c., and you will cure all cases that medicine can reach.

Treatment by surgical operation, is to divide the nerve; but the uncertainty of the particular branch affected, and the difficulty of dividing the nerve above all the collateral branches, and the little success which has hitherto attended this operation, renders it a means on which but little reliance can be placed.

CHRONIC DISEASES OF THE THORAX.

CHAPTER IV.

BRONCHOCELE.

BRONCHOCELE, or goitre, is an enlargement of the thyroid gland, producing swelling of the fore part of the neck, often to such extent as to produce deformity, yet there is but little inconvenience experienced, or danger to be apprehended.

The causes of bronchocele are involved in great obscurity, but no doubt has many causes differing essentially from each other. It has long been known to prevail in particular families, and in many districts, owing to some inexplicable cause, few persons escape it.

TREATMENT.

From the unsightly appearance of this disorder, and its most general attack on females, physicians have been induced to try every plan which ingenuity could suggest, or caprice devise; but the plans have been tried, and the physicians time, and the patients money spent in vain. Burnt sponge given internally is a medicine most relied on; it should be made up into pills with bread and taken, or allowed to dissolve slowly in the mouth, and it must be persevered in for several weeks before any benefit can be looked for. Iodine is considered the element of burnt sponge, and is now used, but it must be with caution. Give tincture of iodine twenty to twenty-five drops, thrice a day to an adult; it is made by taking iodine pulverized forty grains, and add one half gill high wines. When given in pills, make one grain into two pills, one is to be taken morning and evening. When used in form of ointment, rub a drachm of iodine with an ounce or two of lard, rub on the part about the size of a filbert twice a day. Burnt sponge answers as well, and being always at hand, is generally used; take ten grains burnt sponge, ten of burnt cork, make into a pill and put it under the tongue and allow it to dissolve, repeat it twice a day. Mercury may be combined with each dose, one grain. Cathartics and bleeding, leeches to the part, and frictions with mercurial ointment is also recommended. (See surgery for further treatment.)

ASTHMA AND DIFFICULT BREATHING.

THIS is often hereditary; when attended with expectoration of phlegm, it is termed moist or humoral, and when with little or none, dry or nervous asthma.

SYMPTOMS.

It generally comes on at night with a sense of tightness across the breast, and difficult breathing; when thus taken if the patient is lying down, he is obliged to get into an erect

posture, and in free and cold air ; when the fits are violent speaking is difficult.

TREATMENT.

Bleeding is serviceable on the first attack, if the pain in the chest and difficulty of breathing is considerable, but not so afterward, as the disease has a natural tendency to take off the plethoric state of the system. When the fit is brought on by an overloaded stomach, an emetic will give immediate relief ; a cup of cold water with a table-spoonful of vinegar, when it proceeds from the irritation of mucous, is a good remedy. An emetic will always give relief, and cathartics must be given when necessary ; these must be followed by anti-spasmodics as in other spasmodic affections. Laudanum and æther mixed in equal quantities must be given in dose of a tea-spoonful in any quantity of water, and repeated once an hour until it has effect. Liquor arsenicalis, tincture of digitalis, cicuta, &c. may be tried in their usual dose. Sudorifics must be given so as to produce gentle diaphoresis, (see sudorifics.) Vinegar of squills, liquorice and squills, and mucilages, must be freely used during the whole paroxysm. Particular attention must be paid to keep the bowels open. Smoking tobacco, stramonium, (stinking norris,) or the leaves of digitalis, (foxglove) generally produce immediate relief.

A light diet and cool drinks are proper for asthmatics, and the feet must be kept warm and dry, and flannel should be worn next the skin in cold weather.

During the absence of the fit, tonics and the cold bath together with moderate exercise will be most likely to obviate its recurrence.

HOOPING COUGH.

SYMPTOMS.

HOOPING cough attacks in paroxysms or fits of convulsive cough, with loud noise or hoop at each respiration, and generally terminating by vomiting. It is the effect of specific contagion, and like the small pox and measles affects the individual but once in life.

TREATMENT.

The treatment must be regulated by the degree of fever and spasm. If the fever is considerable, bleeding is necessary, and blisters should be applied to the breast. Cathartics of salts, oil, rhubarb, &c., together with such as promote perspiration, a decoction of snake root, Dovers powders, or the antimonial solution, (see sudorifics.) When the spasms are considerable and fever present, an emetic of ipecac will be highly useful; this should be followed by an anodyne, (opium &c.) Mucilages, flaxseed tea, and slippery elm tea, or a solution of gum arabic must be given freely, if this does not allay the cough, a few drops of paregoric may be added when there is not much fever present. When there is but little or no fever, give tincture of bark one ounce and a half, paregoric half an ounce, tincture of cantharides one drachm, mix, and give in syrup or tea, a half tea-spoonful three times a day. On the third day there will be difficulty of voiding urine, and the hooping cough seldom continues more than three or four days afterwards.

A grain of *assofœdita* given four or five times a day will be very useful in allaying the spasms. When the disease returns (is recurrent,) after its apparent departure, as is frequent upon taking cold, an emetic and a dose of gentle physic, followed by an opiate, and the administration of diaphoretics will soon remove it. The diet should be light, milk and vegetables, and change of air and tonic medicines will be proper. There are as many cures for the hooping cough as there are old ladies whose children have had it, but the above is the correct and only sure treatment. Sometimes a disease is modified, suspended, or cured by an other disease; therefore, if the child has never had the kine pox, it should be vaccinated.

CHAPTER V.

CHRONIC AFFECTIONS OF THE HEART.

THERE are no diseases so little understood, and so difficult of comprehending, and so far beyond the control of art, as chronic affections of the heart. Their characters are so ill defined, so difficult is it to distinguish the idiopathic affections

of this organ from those cases in which its functions are sympathetically disturbed, so *impossible* to anticipate with certainty by the symptoms the presence of the disease there; in short, so intimately are the functional disorders of the heart connected with those of the brain, that an attempt to arrange systematically the disease, or lay down definite rules of treatment, may be considered as impossible.

FAINTING, OR SYNCOPE.

THIS consists, as is well known, in a temporary suspension of the functions of the heart and of the whole body. A dimness comes on before the eyes, a deadly paleness overspreads the cheeks, the pulse fails, respiration is entirely suspended, and all the senses cease. The patient falls down, and this posture quickly renews the supply of blood to the heart, and frequently this alone puts an end to the fit.

The most common causes are violent and long continued exertion, long standing erect, violent pain, excessive evacuations, especially of blood, external heat, passion, previous debility, and objects of love, dread or antipathy.

TREATMENT.

The treatment is obvious and simple; lay the patient upon his back, admit a free current of cold air, sprinkle cold water over the face, apply hartshorn or ether to the nostrils, or any of the volatile oils, and when the patient is sufficiently recovered let him swallow some, and give such strengthening medicines as seem requisite. In those cases which are the consequence of loss of blood, the most powerful stimulants, as ether and brandy must be given unremittingly as this alone can ensure safety.

PALPITATION OF THE HEART.

THIS is attended with great uneasiness, and well known to every one. Whenever the action of the heart becomes perceptible to the individual, he is said to have palpitation of the heart. This may be sharp and strong, or soft and feeble.

CAUSES.

The most severe and dangerous forms arise from water in the chest, milder forms may arise from deranged structure. It is also excited by strong emotions and passions of the mind, violent exercise, irritability of habit, and is often connected with other diseases, and arises from plethora; the heart laboring to rid itself of the superabundance of blood, from sympathy with a deranged condition of the abdominal viscera, and is consequently a frequent symptom of dyspepsia, constipation, and diseased liver, weakness of the heart also produces palpitation.

It is not possible to lay down any precise rules for the treatment of palpitation. The taking of a few ounces of blood from the arm will most always give relief. Where the stomach and bowels are in fault, give an emetic of ipecac or cathartic of pills. When it occurs in irritable, or debilitated habits, and in females, rest of body, quiet of mind, tonics and temperance will generally effect a cure in a short time.

ANGINA PECTORIS.

SYMPTOMS.

It consists of repeated paroxysms of pain about the chest, occurring generally when walking up hill, or soon after eating. The pain is so acute as frequently to give the apprehension of immediate death; it is referred to the breast bone, and a little to one side, shooting across the breast to the left arm, terminating in the elbow, in some cases it passes to the right side in the same manner. At length they are brought on by the slightest exertion, and continue for a half hour or more, the face and extremities become pale and are bathed in cold sweat; the pulse varies, and there is a distressing sense of suffocation. This disease has been known to last for many years, but in the most of the cases it proves suddenly fatal. In many instances the cause cannot be known, but the most common cause is an ossified (bony) state of the coronary vessels of the heart, (the vessels that supply the substance of the heart.)

TREATMENT.

The object is to moderate the circulation by bleeding, and allay the pain and irritability by opiates and antispasmodics. An emetic will generally give relief, and the bowels must be kept regular; the food must be light, and late suppers and spiritous liquors must be strictly avoided. Warm bathing and frictions are useful by promoting the circulation in the extremities and surface of the body. Digitalis, hyosciamus, and the prussic acid in their usual dose may be tried; but bleeding, active cathartics of calomel, and occasional opiates are our principal means.

SUSPENDED ANIMATION, OR ASPHYXIA.

ASPHYXIA cannot be considered as a disease, but a state approaching to it, in which the sources of life are suddenly and violently invaded. All sudden deaths are of one or other of the following kinds: 1. death beginning at the lungs; 2. death beginning at the brain; 3. death beginning at the heart; 4. the simultaneous destruction of animal and organic life.

DEATH BEGINNING AT THE LUNGS.

In many kinds of death, (as in suffocation,) two stages are perceptible. In the first stage, sensations, thought, and voluntary motions are destroyed; in the second, circulation and the organic functions cease. The body is said to be alive so long as any animal actions are going on; therefore we do not stop when we come to the cessation of the mind, but follow the changes as long as any movements take place in the body.

The heart continues to act after respiration has ceased; the left ventricle of the heart continues to propel the blood to all parts of the body; but the blood is now incapable of supporting life, and a few waves to the brain, destroy its functions, and the blood from want of exposure to air in the lungs, destroys the action of the heart itself and every part through which it circulates. This blood is venous and acts as a poison upon the nerves, and muscles of the body. Here sensation,

or animal life, with which suffering is connected, ceases before the organs (organic life) ceases to operate.

DEATH BEGINNING AT THE BRAIN.

In this the functions of the brain, sensibility, thought, and voluntary motion, cease first. Respiration is dependant on sensibility and next fails. But in the state of coma and apoplexy, respiration continues slow and difficult, sometimes after every other mark of sensibility has ceased.

Sudden deaths beginning at the brain, occur in the case of severe injury, to the head, epileptic fits, and the taking of narcotics and other poisons.

DEATH BEGINNING AT THE HEART.

Here the order is reversed, the pulsations of the heart are first stopped, and as the brain is not supplied with the stimulus of blood, thought, feeling, and motion gradually fail. Breathing in this case is the latest act of life. Sudden death beginning from the heart occurs from poison, diseases affecting the heart, and from extreme cold.

DEATH BY THE EFFECT UPON THE SYSTEM GENERALLY.

Hemorrhage produces death by its effect upon the whole system, and not by its suddenly checking the heart's action; for the heart continues to act after all supply to it is cut off. In death from arsenic, lightning, exposures to the vapour of sulphur, and by impressions made on the brain and spinal marrow, vitality in all the animal economy ceases at once.

SYMPTOMS AND TREATMENT.

This subject is involved in great obscurity and experience is rather to be preferred to theory.

The first question I anticipated is, how long may breathing be impeded, and the body be susceptible of reanimation? Instances are recorded of persons being recovered after having been a half an hour under water. This, however, is very

much to be doubted; after a person has remained five minutes under water, recovery is generally uncertain. But as one exception to this rule let me observe; if the patient in falling is hurt so as to produce fainting, or in any way, a suspension of animation, he may remain as long beneath the water as above and yet be recovered, instances of this kind have occurred, where sailors, falling from the mast have struck and in common language beat the breath out of them, and have been resuscitated after a lapse of fifteen or twenty minutes.

There are no definite symptoms by which we can judge of the possibility or the impossibility of resuscitation. The putrefaction of the body, is evidence that recovery is impossible. The body of a person drowned is livid, swollen, cold, relaxed, the head bloated, the face leaden or black, the eyes flaccid, dim and partly closed, the teeth set, the mouth and nose covered with froth, the tongue blue and swollen, the chest raised, belly tense, beating of the heart gone, and the limbs are generally stiff.

If recovery takes place it appears first in feeble, irregular, convulsive efforts to breath, gasping, agitations of the limbs, pulse beating at intervals, water coming out from the nose and mouth, with froth, the skin becomes soft, vomiting sometimes takes place, and the patient gradually regains his powers. If there is the least motion of the lungs it may be ascertained by holding a lighted candle near the nostrils, or by condensing the vapour of the breath upon a looking glass held before the mouth and nose, or by placing a cup of water on the chest and observing the motion produced by breathing.

To recover a drowned person, the body should be conveyed to a house, wiped dry and wrapped in warm blankets. It must be laid on a bed in a horizontal position, or brought near a warm fire, or the body may be enveloped in cloths wrung out of warm water, or the bed may be heated by a warming pan, or the body may be surround with warm bricks or bottles filled with hot water, or the body may be placed betwixt two persons in bed, or be put in a warm bath. Artificial respiration must be tried in every case; it may be done by blowing into the nostrils with any small tube, or insert the pipe of a hand-bellows into the nostril, and close the other, press the cartilage upon the fore part of the throat backward, to prevent the air from getting into the stomach, and when the air is to be discharged, open the closed nostril and empty the lungs by pressing backward and upward upon the breast-

bone. Or the valve of the bellows may be raised and the air permitted to pass out, immediately repeating the inflation.

About ten or fifteen respirations are sufficient; the air should be introduced very gently, as it might otherwise force its way through the texture of the lungs into different parts of the body. Where the lungs cannot be inflated from the nose or mouth, an attempt must be made to pass a tube into the lungs, as directed in surgery, and if this is impracticable, the operation of bronchotomy (which see) must be performed. Electricity and galvanism, notwithstanding people look to them with so much confidence, certainly are not worth trying; to cut off from the heart a part of the blood, by cording the arms and legs for a few minutes has been found useful. The limbs should be rubbed with flannel, volatile liniment may be rubbed upon the patient and hartshorn applied to the nose, and a small quantity turned into the mouth. Tobacco may be used in form of injection; bleeding takes the pressure off from the heart, and should therefore be tried.

Asphyxia from hanging is treated in the same way. If a person has not been hanging over half an hour, and his neck is not broken, by warm baths, bleeding, and brisk friction, he can generally be revived.

When children are suffocated by cats lying on their mouths, the remedies are the same as from drowning.

From noxious vapours, is treated by sprinkling cold water on the face, and frictions of snow or ice on the body, with the above means.

From cold, the body should be put into ice cold water, or rubbed with snow, increasing the temperature of the applications and room gradually, as life begins to appear; and nourishment must be early, yet gradually administered. Spirituous liquors have a tendency to weaken the system and hasten dissolution, and should be carefully abstained from in cold weather.

From fevers, give freely of wine or other stimulating cordials, with inflation of the lungs, frictions, &c. &c.

From lightning, gentle bleeding, dashing water over the face, warm bath, or a warm bed, inflation, frictions with flannel and vinegar or spirits or volatile liniments, and cooling remedies to allay fever. Pallisadoes, trees, bell wires, metal conductors, speuts, &c., should be avoided during a thunder

storm. The safest position is, seated in the middle of a room with the feet raised upon the rounds of the chair.

From pressure of the cord &c., in new born infants, take cold water or spirits in the mouth, and spirt it upon the breast frequently, and inflate the lungs by raising up, and suddenly depressing the ribs, or blowing into them as before spoken of. If this fail, hold the child before a warm fire and chafe it gently, or immerse the body into warm water. I recovered my own child, after animation had been apparently suspended for fifteen minutes by immersing the body up to the chin two or three times, suddenly, in cold water it was then wiped dry and wraped in warm flannel. A current of cool air must always be admitted.

CHAPTER VI.

POISONS.

SYMPTOMS OF CORROSIVE POISONS.

THEIR general action is produced upon the brain and heart, and in large doses injures the alimentary canal, the nervous system, or the organs of circulation. Heat, constriction about the throat, mouth, tongue, gullet, stomach and bowels; with excruciating pains of the latter, hiccup, nausea, painful and continual vomiting, sometimes accompanied with blood, bloody-stools, pulse small, hard and frequent, sometimes imperceptable, with an icy coldness, sometimes intense heat, great thirst, urine voided with difficulty and frequently tinged with blood, cold sweats, purple spots, and often an eruption of small pimples, sudden derangement of the countenance, loss of sight, convulsions and loss of mind are the symptoms. Evacuant, antiphlogistic and antispasmodic treatment is the most certain of success.

ARSENIC.

SYMPTOMS.

Offensive breath, teeth on edge, austere taste, hiccup nausea, vomiting, anxiety and faintness, heat and pain at

the pit of the stomach, pulse small and frequent, cold sweats, palpitations, great thirst and heat, loss of feeling in the feet and hands, breathing difficulty, urine scanty, red and bloody, delirium, falling off of the hair, convulsions and death.

CHEMICAL TESTS.

The most certain test is to calcine the suspected matter in a tube, with equal parts of potash and charcoal, if there is the least bit of arsenic present, it will adhere to the inside of the tube in form of a shining, metallic coating. Or, put the suspected matter into tea, add sulphuretted hydrogen, and the arsenic will fall to the bottom, of a beautiful yellow color, from gelatine, albumen, and bile, arsenic if present is precipitated by solution of lunar caustic (nitrate of silver) in a white powder. The ammoniacal sulphate of copper, added to a solution of arsenic, produces a beautiful grass-green precipitate, if dissolved in wine should be dark blue. The appearance on dissection is a grained surface of the stomach, the color of which is red interspersed with dark spots, general inflammation, and perforation of the alimentary canal, detachments of the mucous membrane, and gangreneous scaling of the integuments.

TREATMENT.

An emetic must be given if the poison has not been long in the stomach, warm teas, and mucilages sweetened with sugar or honey must be taken with a view to dilute the poison, and sheathe the coats of the stomach. (If an emetic cannot be made to operate, the stomach pump, or gum elastic tube and syringe, must be used to pump it out; for this, a Surgeon will be necessary. Fat substances of all kinds are dangerous. The best antidote that we are possessors of is lime water; (see Dispensatory;) it forms an arsenite of lime, which has but little action upon the stomach. In the inflammatory state, bleeding, baths, and emollient glysters must be used. If the nerves are affected assafoetida, musk, castor and opium &c. in their common dose will be highly useful.

CORROSIVE SUBLIMATE.

In dose of the eighth of a grain produces uneasiness in the

stomach, in a larger dose and if long continued, it causes colic and pain and inflammation of the salivary glands, the teeth soon grow black, becoming loose, fall out, the gums swell and ulcerate, the palate bones become carious, swallowing and breathing becomes difficult. Heart burn, diarrhoea, spitting of blood, violent pain in the limbs, and joints, trembling of the limbs, paralysis, tetanus, mania, &c., are its results.

It is precipitated white by dropping ammonia into a solution of it, yellow by potash, and of an orange color by lime water, by nitrate of tin a copious dark brown precipitate is formed, and by albumen or mixed with cold water, a white flocculent one.

TREATMENT.

Copious draughts of linseed, marsh ~~m~~allow tea or rice water, sugared water, gelatinous broths, or what is still better several glasses of the white of eggs beat up with water, must be given, or pump out the stomach. Greasy substances are of no use. If the case is recent, bleed and give emollient clysters to which add twenty drops of laudanum, and cover the belly with cloths wrung out of warm water. The diet must be low. If nervous symptoms arise, as twitchings and delirium, opium and other, antispasmodics will be proper.

The cure of poisons whether mineral or vegetable must always be conducted as directed above. The first thing is to produce an immediate evacuation of them, or a counteraction of their effects. Blue or white vitriol will be best, as an emetic, because they operate soonest, and may be given in dose of ten grains every fifteen minutes, until it begins to operate, and then the patient must drink freely of warm water to assist the operation. A cathartic must be given, after the emetic has had effect, to carry from the bowels what may have got there: castor oil. But a cathartic must not be given before an emetic, for it will carry the whole of the poison into the bowels, and certainly produce death.

To remove the stupefaction which ensues after a dose of narcotic medicine; as opium; give lime juice, or vinegar. If the patient lays in a deadly stupor, with cold extremities; blisters and stimulating drafts must be applied to the legs and arms, hands and feet, and the legs and arms rubbed with camphorated spirits; but an emetic must be given as soon as the patient is sufficiently recovered, and sweet oil, milk, &c.,

as before directed must be given. These are the remedies, let the poison be what it may: and unless quickly resorted to, death must take place. If fever supervenes the antiphlogistic treatment must be adopted.

PEARL ASH.

When pearl ash or any of the alkalies have been taken, vinegar is the proper antidote; it must be taken in large quantities. It neutralizes the alkali.

ACID.

When any of the strong acids are introduced into the stomach, the reverse of the above is the treatment. If there is pain of the stomach and bowels, cramps, burning heat in the throat, vomiting, hiccup, copious stools, great thirst, irregular pulse, and difficult breathing, after the taking of any of the acids, give an oz. of calcined magnesia, in a quart of water, a gill every three minutes, soap, soda, chalk and water, also answer when the magnesia cannot be got. Vomiting is to be excited by ipecac or lobelia. And drink given; and spasms allayed by opium; as before directed.

CHAPTER VII.

INDIGESTION, OR DYSPEPSIA.

SYMPTOMS.

THE symptoms are a want of appetite, attended with nausea, sometimes vomiting, heart-burn, costiveness, distensions of the stomach, uneasiness and pain upon taking food, sharp acid liquor frequently rising into the throat as also of undigested food.

CAUSES.

Occasional and habitual overloading of the stomach, indulgence of spirituous liquors, want of exercise and air, excessive or long continued evacuations, cold, anxiety, affections

of the liver, too much exercise, the use of opium, and loud and long speaking, are the most common causes of indigestion.

TREATMENT.

If there is oppression at the stomach with nausea, give an emetic of five grains of ipecac and five grains of tartar emetic dissolved in half point warm water. And follow this with a strong decoction of columbo, cammomile and orange peel, two table spoons full thrice a day, with ten grains iron rust. The bowels must be kept open with gentle laxatives, as the tincture of rhubarb, or rhubarb in substance. Mustard seed, when there is flatulency and sourness of the stomach, as also lime water in doses of a wine glass full thrice a day.

When there is pain in the stomach, the means recommended in heart burn, which see, may be used to allay it, and use frictions with a flesh brush over the stomach; if these do not give relief, administer a dose of ether and laudanum, put a blister over the stomach, and relieve costiveness by injections or gentle laxatives; and when relief is obtained, endeavor to restore the tone of the stomach by bark, steel, and the other tonics.

To relieve the costiveness which always attends this complaint, give medicines that gently stimulate the intestines to a more regular action, this is best effected by flour of sulphur, magnesia, or the chewing of the root of rhubarb every day. Strong purgatives always weaken the bowels, and in this complaint do more hurt than good. If the disease is brought on by hard drink, as is often the case, quit drinking and take elixir vitriol, fifteen drops thrice a day in water or any tonic mixture; or in some vehicle take ten drops tincture of iron. These are valuable in dyspepsia arising from any cause.

If indigestion arises from deficiency of bile, give strong tincture of aloes, or thrice a day twenty grains columbo, or the same quantity of ox gall, or any of the bitter medicines; in common dose. In some cases it is occasioned by putrid matter, from decayed teeth, wash the mouth frequently with alum water, or lime water, or fine charcoal and water. Costiveness is most effectually obviated by sacredly observing the practice of going every morning to the temple of cloacina, whether you want to or not. Smoking tobacco is the most fruitful source of indigestion, and least frequently removed, because it requires abstaining from the pipe.

The diet must be principally of animal food, *and it must be well chewed*, and taken in small quantities, followed with a glass of wine, or good water, many cases have been cured effectually, by a diet of milk; it must always be new when taken. Drinking new milk every morning and evening on an empty stomach, will be useful while employing other means. All known causes must be avoided; and the patient must rise early; and exercise in the morning air cannot be enough recommended.

Exercise on horseback is valuable, and persons who are dyspeptic, will generally recover by getting into business that requires labor on horseback.

There is no specific for this complaint, but by temperance, and an observance of the above directions the disease may generally be removed, and its recurrence forever prevented.

JAUNDICE.

CAUSES.

The passage of gall stones, which appear to consist of the ingredients of bile, differing only in their size, number and figure; produce obstructions in passing from the gall bladder through the ducts of the intestines producing if their size be large great pain and jaundice.

Enlargements of the neighboring parts pressing upon the ducts; or any thing obstructing the mouth of the duct, where it enters the intestine produces it, infantile jaundice has its origin in this cause: hence that speedy relief afforded by purgatives; spasms of the gall duct, inflammation of the ducts, originating in them, or spreading from the liver; or any of the viscera; exposures to cold, drinking cold water when very warm, vicidity if the bile and intemperate and indolent habits are causes of the jaundice. And it is a common symptom of a diseased state of the liver.

SYMPTOMS.

The symptoms are yellowness of the skin and urine and white of the eye, and a clay colored appearance of the stools. These symptoms differ in intensity, and have thence been divided into the yellow, the green and black jaundice. The urine tinges linnen of a yellow color, and all the secretions are similarly affected. There is also languor, lowness of spir-

its, itching of the skin, sluggish pulse, debility, indigestion, loss of appetite, flatulence, and a sour state of the stomach.

Jaundice of infants and young persons, is a disease of little or no danger, while with the aged it is frequently the precursor of the dropsy and apoplexy, and becomes certain evidence of a broken down constitution.

TREATMENT.

Remember that symptoms are the only guide to practice ; where pain is urgent give an emetic or a cathartic, this by its operation will be likely to remove the gall stone if that be the cause, or if it arises from obstruction of the duct in any other way. But a continued use of these will not be prudent ; if after the operation of either of the above, the pain continues a dose of opium must be given, two or three grains in the solid form, or 20 or 30 drops of laudanum ; and repeat according to the urgency of the symptoms, and in very aggravated symptoms the patient must be bled a few ounces, and the warm bath in many instances, will give immediate and permanent relief.

Saline cathartics, alkalies and bitter tonics are recommended in green jaundice ; but it is incurable. A generous diet, cheerful company, change of scene, and moderate exercise, in the open air, will frequently do as much as a regular course of medicine in chronic cases. Bitters and aromatics may also be tried, the medicines for dissolving the biliary calculus, (gall stone,) are soap, alkalies, nitric acid, mineral waters, mercury, blood root, from thirty to eighty drops of the tincture, and the seeds of common hemp ; but all are doubtful remedies except mercury, which will relieve any form, and generally cure that depending on a diseased state of the liver.

HEPATALGIA.

THIS is peculiar to females from the fifteenth to the thirtieth year of life, characterized by constant pain in the side ; it may be either in the right or left side, and is tedious and difficult to cure, but is not dangerous. Bleeding from the arm is attended with but little or no relief, leeches, cupping glasses and blisters to the side will generally afford relief ; if the symptoms are urgent, the taking of a few ounces of blood

from the arm may be tried. Cathartics, such as ten grains mercury, fifteen jalap, or rhubarb, mixed together ; a dose of pills, or any of the common cathartics may be given with good effect, the bowels must be kept regular, and the patient must take tonics especially, or the muriatic tincture of iron. Electricity may be useful, early rising, and moderate exercise certainly are.

CHAPTER VIII.

DYSENTARY.

SYMPTOMS.

A **DISCHARGE** of mucus by stools, often bloody, violent gripings, pain in the loins, constant inclination to go to stool without being able to void any thing, and frequently fever.

THE CAUSES,

Are putrid air, unwholesome food, green fruit, active cathartics, perspiration suddenly suppressed, unseasoned meats, and whatever irritates the bowels.

TREATMENT.

The first thing to be done in order to carry the patient safe through, is to give a dose of ten or fifteen grains (to an adult) of calomel, with half a table-spoonful of rhubarb, or with a table-spoonful of castor oil. If the fever is high and the patient of full habit, bleeding will be proper. The physic must be repeated if it does not operate in two hours ; and after it has operated, give an anodyne of twenty-five to thirty drops of paregoric, or two grains of opium, and repeat, if it does not give ease in twenty minutes. If improper food has been the cause, an emetic of ipecac may be serviceable in the onset, followed by a cathartic of rhubarb ; but vomiting in general will do more hurt than good. On the following day after giving a dose of physic, if there is no evacuations of a natural appearance, rhubarb and calomel, or rhubarb alone, in small doses must be given until this effect is obtained.

The notion of giving opiates and astringents to cure diarrhoea is a mistake ; they serve to lock the disease in the system, but not to drive it out. The cure can only be effected

by a thorough operation of physic, by which the stomach and bowels are cleared of the morbid matter which keeps up dysentary, and the bowels are stimulated to healthy action.—When the disease prevails generally, the cathartic as first recommended, must be given, and the calomel in doses of two grains combined with a grain of opium, and four grains of rhubarb, or the opium and calomel with magnesia, or prepared chalk, and if after giving three or four doses of this (two hours between each) there is no natural evacuations, a dose of castor oil must be given. If acidity (sourness) of the stomach prevails, known by heat, sour belching and vomiting, and excoriations about the fundament, it will be necessary to join with the above doses a few grains of soda, or of pearl ash, and to give mucilaginous drinks, as flax seed, or elm tea, or solution of gum arabic, with a few drops of laudanum, or a spoonful of new milk and lime water may be given every three hours.

When there is apprehension of inflammation of the bowels, the warm bath, or fomentions to the bowels is recommended; blisters and cupping or a small bleeding will be absolutely necessary. When the disease begins to decline, or the symptoms of a putrid nature appear, an infusion of bark, columbo, &c. must be given, and the bowels left open with purges of rhubarb. When the diarrhea continues after giving proper evacnants, and opiates, as above, we should try astringents, alum in pretty large doses, or sugar of lead in doses of two grains once in two hours, (not more than three doses,) and follow it with some gentle laxative. A solution of common salt in lemon juice or vinegar, is also recommended. Starch injections, with a tea-spoonful of laudanum, may be given once a day for a day or two.

Throughout the whole course the diet should consist of gruel, toast, arrow root, sago, panado, and rice, and the drinks must be of a cooling and sheathing nature, and ripe fruit, such as peaches, oranges, &c. may be allowed. All offensive odours must be immediately removed, and the room fumigated with vinegar, and the clothing frequently renewed. To avoid, as much as may be, all exciting causes, keep perfectly clean, and on the first appearance of a diarrhea, (when dysentary prevails epidemically,) a cathartic of ten grains calomel and same of rhubarb, is all that can be done by way of prevention.

CHOLIC.

CHOLIC naturally admits of four divisions, the first is *accidental*, which arises from acrid matter irritating the bowels ; the second is the *bilious*, arising from a redundancy of bile, and other causes that produce cholera ; the third is *colica pictonum*, arising from the poison of lead ; and the fourth *ileus*, which arises from disorganization of abdominal viscera.

CAUSES.

Flatulence, indigestible substances taken into the stomach, acrid bile, hardened fœces, costiveness, worms, acids, improper cure, or sudden disappearance of intermittents, sudden check of perspiration, and the taking or the application of poisons.

TREATMENT.

When there is pain, with rumbling in the bowels, and ease from a discharge of wind, or from the patient's laying on his belly, it arises from wind, and may be relieved by a glass of brandy, gin, or a tea-spoonful of ether and laudanum, or ginger, pepper, calimus, (sweet flag,) or mint tea. These should not be used in any case but that occasioned by wind. In full habits where the pain is fixed and severe, bleeding is necessary to relieve pain, and a brisk cathartic must be immediately given, aided by stimulating clysters ; and when these means fail the warm bath must be tried, or flannels wrung out of hot water must be applied to the belly. And if the pain remains obstinate, opium, laudanum, or paregoric must be given in large doses until the pain abates ; this will take off the spasms, and the physic will operate, and relief will be produced as if by charm ; the mixture of ether and laudanum is the best form. It is also advised that when all other means fail, that the patient be made to stand up, and a pail of cold water be thrown on his feet and legs.

In every variety an emetic will produce the soonest relief, and it should always be followed by a brisk cathartic ; and if yet the pain continues, opium must be given as above directed. A blister to the pit of the stomach will often give relief. The patient must carefully avoid all exposures to cold, and the use of all acid and flatulent food.

Cholic pictonum requires no different treatment from the other varieties, except that there must always be given a grain or two of opium with the cathartic ; and this is necessary when we know it arises from the use of lead, because the spasms are so strong as to defeat the operation of the most active purgatives, without the relaxation which opiates produce.

WORMS.

SYMPTOMS.

THE symptoms are often very indistinct, the most general are dyspepsia, irregular actions of the bowels, a sense of tightness across the breast, inability to swallow, uneasiness about the stomach, the belly is hard and swelled, there is picking at the nose, hiccup, disturbed sleep, grinding of the teeth, irregular pulse, offensive breath, a constant dry cough, furred tongue, slow fever and emaciation. Sometimes worms produce giddiness and epileptic fits.

VARIETIES.—*The lumbricus teres*, or round worm resembling in its appearance the common earth worm. *The tænia*, or tape worm is often very long, from twenty to thirty feet ; it occupies the upper part of the intestines, and feeds on the chyle. The separate joints of this worm have the appearance of gourd seeds. *The ascarides*, or thread worms, are about half an inch in length, of a yellowish white color, and remarkable for their quick motion.

TREATMENT.

It would be tedious and useless to enumerate all the remedies that have been recommended for worms. The first object is usually to expel the worms. This is frequently attempted by drastic cathartics, which clear the bowels not only of the worms but of the mucus also, in which the worms imbed themselves. It will be well to give in the first instance four or five grains cowich, and after waiting an hour or so, give five grains of calomel with a tea-spoonful of jalap or rhubarb, or in a table-spoonful of castor oil, or give a strong decoction of pink root, and follow it immediately with an infusion of senna or some other active cathartic, or three or four small doses of calomel given once an hour, and then a brisk cathartic will frequently expell the worms. The oil of

turpentine given to children in dose of a tea-spoonful, mixed with honey and milk or water, is perfectly safe, and one of the surest means we possess ; it generally produces an intoxicating effect which quickly passes off. This will remove the tape worm, which is almost impossible to move by any other means. Worm tea, worm seed, oil of worm seed, tansy, rue, and wormwood are useful. Tin powder and filings are recommended, but they are not safe.

Different remedies are recommended with a view of poisoning the worms, such as tobacco, arsenic and helebore, but these are worse than the disease. But there has been too much dependance placed on all vermifuges. The object should be to strengthen the system generally, and excite that energy in the constitution which will enable the bowels to expel the worms and resist their subsequent formation ; by regulating the diet, keeping up a regular action of the bowels, the general system must be strengthened by exercise in the open air, by the cold bath, and the use of the various preparations of steel, (for other worm medicines see anthelmintics.)

DRACUNCULUS, OR GUINEA WORM,

Is peculiar to hot climates ; it is caused by a worm which insinuates itself into the soft parts of the body, creating irritation and fever. Its body is white, head black, and is long and small like a hair, it is found most commonly in the legs and thighs, immediately under the cellular membrane, and is from one to two and a half feet long. About the time of its exit the part about the head swells and inflames like a small boil which breaks and the head protrudes.

TREATMENT.

As soon as the part becomes painful, a poultice must be applied, and as soon as the head can be got hold of it must be wrapped round a quill or any small roll, gradually rolling it every day till the whole is extracted. Great pains must be taken not to break it, as small abscesses would be formed along the whole extent of the worm.

CHAPTER IX.

ABDOMINAL HAMORRHAGE.

VOMITING AND PURGING OF BLOOD.

CAUSES.

THIS is, first symptomatic of fever of a highly malignant or typhoid character, or ushers in an attack of small pox or idiopathic petechial fever; this is indicative of the greatest danger, and is seldom if ever subdued. In the second place, hamorrhage from the bowels and stomach is the consequence of inflammatory action in the alimentary canal. In the third place it is known as common to young women, between the ages of fifteen and five and twenty. The matter rejected is seldom pure blood, and generally is nothing more than a morbid secretion of the stomach tinged with blood; it is seldom attended with danger, or debility; in most cases it is in consequence of the irregularity of the periodical evacuations.—And it arises also from colic, costiveness, and from disease of some of the organs, obstructing the free passage of blood and producing ruptures of the vessels.

TREATMENT.

In young plethoric persons, especially women, it will be proper to take away blood by the arm, and repeat it according to the urgency of the symptoms. Purging will be proper in all forms, but where the liver is diseased and the constitution weak, the bowels should be simply unloaded by castor oil, or epsom salts; if the bleeding is much, and continues long astringents will be necessary, (see treatment of bleeding from the lungs.) The oil of turpentine in small doses is said to be a preventative, but it is not to be relied on. When it occurs in young women the muriatic tincture of iron, &c. as recommended in irregular menstruation must be resorted to. Ipecacuanha in full dose is said to have cured some cases. When it is from the bowels, and is attended with emaciation and extreme debility, glysters of cold water should be tried; I have seen this put an immediate stop to it, this must be followed by gentle purgatives.

PILES, OR HEMORRHOIS.

SYMPTOMS.

A **FLOW** of blood from the fundament, or painful tumors about it. *The causes* are various, costiveness, strong aloetic and other purges, riding, sedentary habits, &c.

TREATMENT.

If the patient is of a full habit, bleed and enjoin a spare diet and strict temperance ; keep the body gently open with equal parts of sulphur and cream of tartar, in dose of a tea-spoonful two or three times a day. Set over the steam of hot water to abate the pain, and anoint the parts with sweet oil, or ointment of thorn apple, (which see,) and wash the part frequently with astringent washes, such as lead water, solution of alum, kino or decoction of soft maple, spotted maple, or oak bark. If these prove ineffectual anoint the tumors night and morning with unguentum, in which is mixed pulverised opium. Leeches to the tumor are highly useful. If the disease arises from debility, give ten grains of steel thrice a day. When they are of the bleeding sort apply cloths dipped in cold vinegar and water, or a strong solution of alum, or white vitriol, and use the above ointments, and give tonics to restore the tone of the vessels.

SEA SICKNESS.

SYMPTOMS.

It is sometimes so violent as to be attended with bleeding from the stomach, with a twisting and violent pain. It begins with giddiness and fullness of the head, which is soon followed by nausea, and violent vomiting.

TREATMENT.

It is proposed by some physicians, that persons before going to sea should accustom themselves to turning round rapidly as a prevention, lying down with the eyes shut, to avoid looking at the water, or keep as much as possible on deck and in active exercise, and keep the bowels freely open by any common purgative, and compress the abdomen by tying a hand-

kerchief around it ; and laudanum, ether, lemonade, warm punch, bitters, bark, &c. &c. must be given after the operation of the physic, especially if the patient is much debilitated.

CHAPTER X.

GRAVEL. (STONE IN THE BLADDER.)

THIS is known by pain in the loins and urinary passage, sickness at the stomach, and sometimes a discharge of bloody urine.

TREATMENT.

The most powerful medicine is the castic alkali, made by mixing two parts of quick lime with one of pot-ash, and when the lixivium is formed, filter through paper, if the solution does not form readily add a little water, begin with a small dose and increase gradually as the stomach will bear ; it must always be given in mucilaginous drinks. An infusion of wild carrot seeds sweetened is very useful ; either of these must be continued for a long time if there is an abatement of the symptoms. Pain must be allayed by opium, and we must give freely of diuretics, (which see,) to force if possible the stone away with the urine. To dilate the passage with bogues will favor the object ; the bowels must be opened by saline cathartics. Where the pain is great, bleeding will be proper, as also the warm bath, fomentations and setting over hot water. To relieve the pain, hyosciamus is best because it does not bind the body. The patient must carefully avoid all sources of irritation, as violent exercise, long standing erect, riding in a wagon, or on horse back ; these agitate the stone and bring its rough surface in contact with the delicate surface of the bladder.

For this complaint there are cures without number, and physicians have many medicines which they tell you will dissolve the stone ; all of these will be found under the head lithontriptics ; but I tell you that if the above will not cause the stone to come away, the patient will have to submit to an operation, or suffer the effects of the stone for life.

INFLAMMATION OF THE KIDNEY, OR NEPHRITIS.

SYMPTOMS.

THE pain comes on sometimes suddenly, at other times gradually ; it is heavy, acute, in the loins, shooting into the privates, bladder, scrotum, and perineum ; if lying on the belly, coughing, sneezing, going to stool and heat of the bed, increase these symptoms, there can be no doubt of its seat in the kidneys. The breathing is difficult, the pulse full and hard, which becomes feeble and intermits as the pain rises : sleeplessness, convulsions and headache also attend it. When it arises from a stone, the pain is more acute than when it arises from any other cause.

The causes are the same that produce other inflammations, and it arises from other diseases falling upon the kidneys, and from the formation of stones in the kidney, but more commonly, the inflammation causes the formation of calculas.

TREATMENT.

General and local blood letting, mild purgatives, emolient clysters, demulcent drinks, *and the warm bath* are the principal resources ; blisters must be avoided, they often produce the disease. Where the pain is extreme, or we have room to suspect the presence of calculus, opium will be proper. The essential oils, and stimulating medicines must be avoided. Sometimes it will require the most active cathartics. I knew a case in which, after taking several doses of calomel &c. without effect, the patient took fifteen drops of croton oil. Injections are particularly useful in the decline of this complaint. A person laboring under this complaint must live almost entirely on vegetable food, and avoid the use of all fermented and spiritous liquors.

BLEEDING FROM THE URETHRA, OR HEMATURIA.

THIS sometimes occurs with vomiting of blood, (*hæmatemesis*,) but in most cases it is symptomatic of local disease in the urinary system. It seldom proves hurtful ; the patient

should take a dose of salts, and use for drink some mucilaginous preparation. When it occurs in the last stages of measles, small pox or scurvy, it is a mortal symptom, and if any thing can be done, it is to support the system by tonics.

A STOPPAGE OF THE FUNCTIONS OF THE KIDNEYS, OR ISCHURIA RENALIS.

IN this disease the urine is retained in the blood, there is a small dull pain in the iliac regions, anxiety nausea, vomiting, hiccup, cramps, restlessness, sometimes delirium, lethargy and coma, with a constant desire to void urine when there is not a drop in the bladder. The taste of urine is perceptible in the mouth, and the sweat has a urinous smell.

The causes are those which derange the functions of the body, particularly those that operate upon the urinary system.

TREATMENT.

Warm bath, stimulating diuretics, cathartics, followed by opiates, and cupping from the back of the neck.

IMPOTENCY.

WHEN the patient is gross and of full habit, bleed and reduce by cooling physic. If the system is weak, take twenty drops of tincture of spanish flies every three hours; and when this has subsided renew the medicine, and take iron rust, tincture of iron, and other tonics: much exercise weakens any part, be therefore, temperate in this respect.

INVOLUNTARY DISCHARGE OF THE SEMEN, GONORRHOEA DORMIENTIUM.

THIS takes place generally during sleep, and seems to arise from dreams, libidinous conversation, loose books, any thing that quickens the circulation, too much bed clothes, stimulating food, strong drink, coarseness, aloetic purges, riding on horseback, and any excessive exercise. This must be treated by cooling aperient water clysters, from half pint to a pint warm water, and to this may be added a

tea-spoonful of laudanum. The bladder should always be emptied before going to bed, and the patient must use tonics, and avoid all known causes.

CLASS IV.

CHRONIC CONSTITUTIONAL DISEASES

CHAPTER I.

SCROFULA.

SCROFULA is designated as a morbid state of the lymphatic glands. The marks by which we distinguish a predisposition to scrofula is, a fair, thin, smooth skin, light, soft hair, large blue eyes, and a blooming complexion, thick lips, long slender fingers, long neck, narrow chest, and prominent shoulders, with acute and lively intellect. Among the earliest symptoms that develop themselves, are swellings of the glands of the neck; these tumors often remain for a long time without producing any inconvenience; this is the mildest form under which it ever appears. When these do not subside spontaneously, an imperfect suppuration takes place, followed by open ulceration; the ulcers heal slowly, leaving ragged and unsightly scars, and other tumors form and run a similar course, keeping up the disease very often for a number of years. Scrofula affects other structures, and the scrofulous abscess is distinguished by its jagged and uneven sides; the pus is thin, *ichorous*, and mixed with curdy flakes; the margin overlaps the sore which is of a light red color, and the granulations are flabby and indistinct, and the ulcer remains stationary for a great length of time.

The climate must be changed if practicable; flannel must be worn next the skin in cold climates; sea bathing is of the greatest importance, or the warm bath, or warm salt bath may be preferable; there is reason to believe that perseverance in sea bathing for two or three years has cured the complaint. Moderate exercise and early rising will be proper, and attention to diet is of the utmost importance, it must be nourishing, not stimulating, and taken often and little at a time. The

remedies chiefly, which deserve confidence, are five grains calomel with half a dose of any other physic, and this followed by bitters and tonics; when the stomach and bowels are disordered, soda, quarter of a tea-spoonful in water, and steel, bark, mineral acids twenty drops, several times a day, and mild alteratives, such as decoction of sarsaparilla and the liquor of potash; to this might be added thousands of drugs which have been recommended in this disease, but which are of no consequence in the treatment.

KING'S EVIL,

Is that form in which the glands of the neck become enlarged with or without inflammation. The course before recommended is applicable here, and stimulating remedies, such as lotions and poultices, made of sea water, mercurial plasters, and frictions with volatile liniment. [For further on scrofula see surgery.]

CACHEXIA,

Is a term used to express that depraved condition of the system which is the result of depressing causes long operating without fever.

SCURVY.

This is a cutaneous eruption dependent on a bad state of the blood, called scorbutic.

SYMPTOMS.

The scurvy is gradual in its approach, attended with lassitude, difficulty of breathing, pale yellowish countenance, the gums swell, and bleed upon the slightest touch, the breath is offensive, skin dry and rough, or smooth and shining, with large livid blotches about the legs and thighs, the whole body swells, there is pain in the bones, and oppression about the chest. In the second stage, the patient loses the use of his limbs, general emaciation follows with a tendency to faint on the slightest exertion. He dies exhausted by some effort, or of dropsy.

It arises from want of proper nutriment ; occurs to sailors when living on salt provisions, more so if it has been long kept, by neglect of cleanliness, imperfect ventilation, cold damp air and want of exercise.

TREATMENT.

Scarcely any thing more is necessary, than the use of a wholesome diet, particularly vegetables. And a navy surgeon has but little more to do than prevent the scurvy, which is effected by attention to cleanliness, ventilation, exercise, and avoiding cold.

The articles of food to be sent out with a ship to prevent this disease, are peas, beans, rice, sago, potatoes, sour crout, raisins, currants, prunes, tea, coffee, honey, molasses, Seville oranges, marmalade rum, brandy, beer, porter, wine, cider, vinegar, citric acid, the juice of limes, oranges, fresh milk, and the animal food must be fresh, and the water pure. The use of what are called antiscorbutics will be proper to purify the blood, those most deserving of confidence, are lime juice, preserved fruits, sugar, infusion of malt, soruce beer, and vinegar ; lime juice is a certain cure for the scrofula, and where this cannot be had pure, use citric acid. The sores must be washed with lemon juice, and a decoction of bark. The bowels must be kept open with mild purgatives, and warmth upon the surface promoted by Dover's powders, &c.

CACHEXIA AFRICANA.

THIS affects the negroes of the West Indies, but more particularly in the island of Trinidad. There is an oppressive weakness, the patient becomes pale, and unable to take exercise, the feet and legs swell, there is palpitation, and occasional vomiting, the symptoms increase in severity, the stomach rejects every kind of nourishment.

It is caused by fatigue, and exposures to extremes of climate. And is cured by change of climate, nourishing food and the exhibition of tonic medicines.

CUTANEOUS HEMORRHEA, OR HÆMORRHŒA PETECHIALIS.

THESE spots on the skin are of a purple color, and constitute petechie and vibices, and are in the first place the result of high febrile action, of a typhoid kind, and is a symptom of urgent danger. In the second place, purple spots resembling those which occur in fever, are associated with, or caused by plethora, denoting an unequal distribution of blood. And in an other instance, it is a consequence of deficient nourishment, and other debilitating causes. And lastly, we meet with cases that are wholly constitutional, in which case the livid spots will occur on the slightest occasions, and frequently without any obvious cause. When the disease ends fatally it is by some sudden discharge of blood from an important organ, the lungs, stomach, or womb.

TREATMENT.

It is not possible to lay down any definite rules of treatment in this complaint, and it must depend much upon judgment. If there is high febrile action and especially if the disease is dependent on plethora, (a full rugged habit,) a moderate bleeding will be safe and proper, and must be followed by cathartics of calomel, &c. and the use of proper restoratives afterwards. But when it arises from debility, or a constitutional tendency to the complaint, a contrary course is indicated. We must then cleanse the stomach and bowels by a mild laxative, and follow this by tonics, as columbo, orange peel, camomile, and the mineral acids. In many instances, wine and other stimulants will greatly facilitate convalescence. The recovery will be tedious, and therefore, the means must be persevered in for a long time.

DIABETES.

THIS term is properly applied to cases in which the increased flow of urine is permanent.

SYMPTOMS.

This disease begins with lassitude, weakness, a disposition to sweating on slight exertion and headache. In some in-

stances there is a diseased state of the urine, a long time before the patient takes notice of it. The most that I have seen recorded, as having passed in twenty-four hours, is thirty-six pints; the average quantity is twelve or fifteen pints a day, the quantity often exceeding the whole amount of food and drink taken. The urine is of a pale straw color with a peculiar swell, sometimes resembling sweet whey or milk, and has a saccharine (like sugar) taste; the appetite is usually greater than in health, there is uneasiness in the stomach after meals, with sour eructations, flatulence, and irregular bowels; there is also thirst, dry skin, which is rough and parched from want of perspiration; the gums are swelled, tongue white, breath offensive, great weakness of the loins, emaciation, cold feet, pulse in the advanced stage, quick, feeble, irritable, and there is every mark of general exhaustion. This sometimes runs its course, and proves fatal in a few weeks, but it more commonly lasts for years, and ultimately wears out the constitution. There are a few cases of recovery recorded.

Of its causes but little or nothing is known.

TREATMENT.

The practice in this as in most other diseases, is almost empirical, and the physician knows it; and if he does not tell the patient all that he can do, and direct him to manage it himself, he is not an honest man, and might as well take the money without the shade of an equivalent, as to take it for his attendance. This I know is taking high grounds, but I will extract the treatment verbatim et literatim from one of the most popular works now in use. [See GREGO., vol. ii. p. 402.] “Astringent remedies were early resorted to, more particularly lime water, alum whey, kino, and catechu. On the supposition of diabetes being mainly a disease of debility, bark chalybeates, and the mineral acids, have been extensively used. In 1776, Dr. Rollo suggested the employment of animal diet, and experience has shown that it possesses an undoubted power of diminishing the quantity of urine. It will be found, however, in practice that this plan of treatment can never be rigidly enforced. Blood-letting has been tried by some practitioners, and has proved serviceable in one or two cases, but it cannot be recommended for general adoption. Cupping from the loins has been practiced with the view of diminishing the morbid excitement of the kidney. Opium is

the latest and now most esteemed remedy ; but upon this, and upon all other remedies for the cure of diabetes, one remark may suffice. Many drugs exert a certain power over the disease which after a time fails. A blister to the loins will occasionally check in a remarkable manner the inordinate secretion of urine. Uva ursi, (which see,) alum, and opium will do the same in other cases ; but the relief they afford is temporary, and when the influence of the drug goes off we are still as far removed as ever from the cure of the complaint."

For further on the treatment, see receipts for the cure of diabetes.

CHAPTER II.

DROPSY.

Ascites, dropsy within the belly ; this is readily known by an abatement of appetite, scanty urine, thirst, shortness of breath, fever, general lassitude, with swelling and fluctuation of the belly. This is sometimes mistaken for pregnancy, if there is any doubts, a few weeks will of course develope the true state of the case.

CAUSES.

All the forms of dropsy may arise from the following causes ; excessive drinking, poor diet, protracted intermittents, schirous tumors of the abdominal viscera, violent inflammations, and whatever may occasion too free a secretion of the action of the absorbent vessels.

TREATMENT.

The treatment must of course vary to the circumstances in this as in other diseases. When the affection depends upon organic disease of the viscera it is beyond the reach of art. If there is internal pain, fever and emaciations, it will be difficult if not impossible to cure. Brisk purges of calomel, fifteen to twenty-five grains, with jalap, twenty to thirty grains, or calomel twenty grains, gamboge six grains, must be given, and others of a similar kind. Where there is high vascular action it will be proper in the first place to bleed ;

these may be followed by an anodyne, or opiate. Jalap will be found the best and safest form of physic, and must be given in large doses every day or two, and we may expect benefit from any kind that brings away unusual quantities of water; such cathartics are called hydragogue. Elaterium is much given of late years, some it kills and some it cures; it must be given with care, from half a grain to a grain made in pill, and one taken every four hours until it operates; if it operates with a vengeance, as it frequently does, puking and purging, and producing dizziness of the head, give vinegar or tartaric acid, or lemon juice, this will destroy the strength of the medicine. At the same time we must use diuretic medicines, dissolve cream of tartar in water and use it for common drink, squills, syrup of squills, strong solution of nitre, table-spoonful once an hour; or spirits of nitre tea-spoonful once an hour; or spirits of nitre, paregoric, and balsam copaiba in equal quantities, give a tea-spoonful once in two hours. In cases where there is constant looseness of the bowels, these must be used, joined with opiates, and the active physic neglected; in such case, a dose of rhubarb will be highly beneficial. Salts, small doses of calomel, the tincture of digitalis in the usual dose, juniper berries in gin, and syrup or tea of ginger in small doses, or two grains emetic tartar every three hours, may also be tried. When the strength is much exhausted the patient must be supported by tonics, and a light but nourishing diet.

Bandages around the parts will always be serviceable. When the accumulation of water becomes so great as to interfere with breathing, tapping (see paracentesis abdominis,) must be resorted to. This operation will afford relief if nothing more.

HYDROTHORAX; dropsy of the chest. This is difficult of detection; it has besides those common to dropsy, local symptoms, such as difficulty of breathing, aggravated by exertion or lying down, a sense of weight and oppression at the pit of the stomach, starting from sleep, cough, livid color of the lips, palpitation and irregularity of the pulse, and in the latter stages the expectoration is frequently tinged with blood.

This is incurable, and all that the friends can do is to keep the patient comfortable, give occasional doses of physic, and relieve the pain by opiates. The doctor will tell you he can cure it, and will stick by till the disease goes off, and the patient with it.

HYDROPERICARDIUM; water in the purse, or membrane, which encloses the heart, it is generally connected with hydrothorax. In this and hydrothorax, the means on which we are to place any reliance at all are diuretics; begin with digitalis, three drachms of the infusion three times a day, and increasing it to six drachms, and it may be united with infusion of pepper, or acetate of potash, nitre, cinnamon water, &c. Tapping the chest [paracentesis thoracis] is recommended as a last resort.

ANASARCA, general dropsy, or dropsy of the cellular membrane. The most prominent symptom is, œdematus swelling and pitting of the skin upon pressure; it usually commences in the feet and legs, which gradually extends over the whole body, the skin is parched and dry; in severe cases the skin gives way and serum oozes through the pores of the skin. Erysipelas and gangrene are apt to follow in bad habits of body.

TREATMENT.

Where it occurs suddenly from cold, or the use of spirits, bleeding will be proper, and this must be followed by purgatives, as recommended in the other forms of dropsy, with saline and antimonial medicines, nitre, acetate of potash, solution of antimony and diuretics, and relaxants, squills and digitalis. These will not be of much service unless aided by copious dilutions. Therefore liquids must be allowed, and such as promote a discharge by urine must be enjoined.

But if the system is weak, and the dropsy appears to have risen from debility, the system must be supported, in which case recourse must be had to the use of tonics, camphor, bitters, peruvian bark, quinine, &c. Scarifications with a lancet let out the water and afford relief, the only danger is from the scarification producing inflammation and mortification. Blisters and issues are recommended, but they are not advisable, for the same reasons. Laced stockings or bandages may be of some service.

CHAPTER III.

CHRONIC DISEASES OF THE SKIN, CHRONIC CUTANEOUS DISEASES.

BLOTCHED, OR PIMPLED FACE. [ACNE.]

THIS is common to young people of both sexes ; it is characterised by pimples on the forehead and chin, and frequently upon the breast and shoulders. It first appears like little worms in the skin, but it is nothing more than the sebaceous [fat like] matter obstructed in its passage through the skin, in consequence of which it accumulates, hardens, distends the pore which contains it, and produces inflammation and abscess.

TREATMENT.

Frequent bathing, rubbing the parts with warm soap suds frequently, and forcing out the "worms," as they are commonly called, will in most cases suffice. But sometimes it is connected with disorder of the stomach, and an emetic or cathartic should therefore be given in the first place, calomel should be joined with whatever cathartic is given. And the sores should be washed with lead water, or a solution of sugar of lead, or white vitriol, or corrosive sublimate, and anointed with mercurial ointment, or unguentum or yellow ointment, (unguentum, nitritis hvdrarggri,) several times a day.

In addition to this, if the tubercles terminate in suppuration spreading some distance round, with considerable matter, and a dark blue color of the skin, which is painful to touch ; poultices, fomentations, puncturing the tumor, and pressing out the matter, following this with the above lotions and ointments, with occasional doses of gentle physic, and the taking of twenty drops elixir vitriol thrice a day, constitutes the principal treatment.

SCALD HEAD ; TINEA CAPITIS.

THIS is known by the falling off of the hair, owing to too great excitement of the vessels of the scalp, which produces,

besides the above, clusters of minute, oozing, red pimples, dispersed over the scalp. This in the first place is nothing more than a scurfy reddened appearance of the scalp.

TREATMENT.

If there is matter formed, it must be pressed out and the head washed clean (if much hair it must be shaved off,) with castile soap suds, or solution of blue vitriol; this must be repeated every morning until the pustules cease to form.—Other lotions, as the white vitriol, lunar caustic, and corrosive sublimate, will be equally efficacious; the strength of these must be regulated by the feelings of the patient. This may always be cured without the application of a cap tarred upon the inside, which is drawn off, after two or three days, pulling the hair out by the root. There are *many* ointments recommended that are valuable, as of white and red precipitate, sulphur ointment, sulphur and tar, mercurial, of nitrous acid, sugar of lead and opium, hellebore, mustard, pepper, rue, &c. This complaint is spread among children by sleeping together, using the same comb, or by their heads coming in contact in any way.

ITCH, OR PSORA.

THIS arises from insects (*animalcula*;) which are first produced by uncleanness, and is then propagated by contagion. These insects insinuate themselves beneath the skin and produce small vesicles.

To all insects sulphur is a complete poison, and if the use of sulphur ointment is persevered in, perhaps there is no case but what it will cure. Take hogs lard four parts and melt it, add to the melted lard one part of sulphur; this should be applied five or six nights in succession. It will be well to take internally sulphur, or some other gentle laxative, at the same time. Unguentum, yellow ointment, red and white precipitate, &c. (which see) will generally effect a cure, if persevered in for two or three weeks. There are also many lotions recommended, as corrosive sublimate one drachm, rain water one pint, or sulphuret of potash one ounce to a pint of water, or castile soap two ounce, high wines one pint. The parts affected are to be bathed with the one used, by means of a sponge or cloth; these are also very useful in

other eruptions, not attended with inflammation. Any lotion similar to t e above may be used ; the object in all prescriptions for the itch is to kill the insects.

LEPROSY.

THIS appears in irregular patches, about the size of a half crown, covered with small shining scales, encircled by a dry, red and slightly elevated border, it occurs at all periods of life and under every variety of circumstance.

The treatment in this disease has been attended with little, if any success. Dulcamara (which see) is the only remedy that has appeared to be attended with any permanent benefit. The various mineral waters have been celebrated in the cure of lepra, and certainly are worthy of trial. Warm bathing is also recommended, and t e same ointments and lotions directed for the itch are also directed in this disease.

In Cayenne, a surgeon was entrusted by the French government with a number of these patients every year, with a view to discover a cure, but every plan has proved unavailing. The leprosy of Lombardy, (*pelagra*) commences with dusky red spots on t'e back of t'e hands and feet, attended with pricking and itching ; small tubercles arise, the skin becomes dry, scaly and divided by furrows or cracks, it is treated as t e above.

Psoriasis differs from lepra in the irregularity of its patches, and their being frequently accompanied with cracks or fissures of the skin ; citrine ointment, and t e use of sulphur internally, sometimes is of advantage, but it generally continues through life.

PRURIGO is a papular chronic disease, characterised by excessive itching ; this differs from the itch in its never advancing to vesicles, nor differing in color from the surrounding skin. It affects the whole body in some cases. Old persons are most frequently affected, and with t'em it proves so formidable as to interrupt every enjoyment of life. In the treatment, cleanliness and the warm bath are the most important remedies. Purgatives must not be omitted, and lotions and ointments recommended for itch are equally successful here. It is in fact a variety of itch.

RING WORMS are cured by mild washes of zinc, mercury,

sugar of lead, &c., with the use of the yellow ointments, a vegetable diet and occasional laxatives.

RUPIA generally appears in weak, or scrofulous habits, long excited by intemperance and irregularities, or it may follow small pox and measles. It first appears on the legs gradually extending over the whole body. The treatment consists in change of air, the internal use of sarsaparilla, cinchona bark, &c. joined with chastity, and temperance.

“**THE SCABIES OF ILLINOIS** is most frequent in the winter and nearly disappears in the summer, it is attended with itching and pimples filled with a transparent fluid. The itching is relieved by exposures to the air. Sulphuric and mercurial ointments, lotions, &c., as recommended in common itch is the cure for this.

DANDRIFF. This should be early attended to, as it is frequently the cause of scald head. It is easily cured by cutting the hair short and keeping the head clean, and bathing it with twelve grains acetate of zinc, dissolved in a pint of proof spirits and a quart of water ; this may be applied by means of a soft sponge ; and the use of sulphurous, mercurial, &c. ointments, to destroy the insects that produce it.

All cutaneous eruptions are treated on a similar plan.

CHAPTER IV.

SQUINTING, OR STRABISMUS,

Is produced by debility of one eye. When the defect is confined to one eye, stretch a piece of gauze or green silk on whale bone, and cover the *well* eye with it two or three hours at a time, thus the other will become strengthened by use. The child should be approached, and its playthings placed on that side which will cause it to turn the eye strait, the eyes must be kept from strong light, and they should not learn to read when young. Where it arises from organic defect, all remedies are useless.

NIGHT MARE, OR INCUBUS,

ARISES from fullness of the vessels. All causes that pro-

duce fullness must be avoided, as seditary habits, costiveness, corpulence, full eating, late suppers, anxiety, and excessive application to study. The bowels must be kept regular, the patient if full must be bled, and he must sleep with his head high, and lay upon his side; with whatever cathartic is used, give magnesia, or salts of tartar three scruples. If the patient is weak give bark, &c.

HICCUP, OR SINGULTUS.

THIS is a spasm of the diaphragm, produced by various causes, and cured by taking a little cold water, or vinegar, or lemon juice, or by exciting surprise or affright in any way. If these do not succeed, try opium, musk, ether, assafœtida, &c., and if all these fail, give chalk, or charcoal, or ammonia, or soda, or pearlas in small doses, for it arises probably from acidity of the stomach.

HEART BURN.

THIS may be produced by various causes, and is often a symptom of indigestion, and generally arises from similar causes; and must be treated by first removing the uneasiness with half a tea-spoonful of salt of tartar, or table-spoonful of magnesia, in mint water, tea, new milk, or any thing convenient; or by chewing a crust of bread, or taking a small quantity of chalk, charcoal, or liquorice ball. To cure the disease, give an emetic, and afterwards ten grains of the rust of iron, three times a day for some weeks, keeping the bowels regular by gentle laxatives, and a blister should be applied over the pit of the stomach.

THE VENEREAL DISEASE

Is of two species, the one, a local affection, termed *gonorrhœa* or *clap*; the other, a constitutional complaint, called *sypilis* or *pox*.

GONORRHOEA, OR CLAP.

SYMPTOMS.

A **TINGLING** sensation at the extremity of the part, which swells, looks red and inflamed, followed by a discharge of matter which is first of a whitish appearance, but soon turns to a yellow or green color, with scalding pain in making water, and involuntary and painful erections. As the inflammation increases, the testicles become affected, swellings take place in the groins similar to buboes; the foreskin cannot be drawn back,* or, being back, it cannot be drawn forward.† When all these symptoms are present, the clap may be said to be actively engaged in the work of punishment, and the patient finds himself fairly seated on the stool of repentance.

TREATMENT.

There are two kinds of this affection, the mild and the virulent. The first may be cured by soothing mucilaginous drinks, such as flaxseed tea, barley water, mucilages of gum arabic, &c. For the second, if there be much pain and inflammation in the parts, lose some blood, take a dose of salts, and apply a bread and milk poultice to the part, and afterwards prevent costiveness by small and repeated doses of cream of tartar; or instead of the poultice, it may be soaked every hour in warm milk and water, or soap suds which should often be injected under the skin in order to cleanse out the matter, the acrimony of which might otherwise produce mortification. At the same time a little of the following injection should be thrown up the urethra with a common syringe six or eight times a day, immediately after making water, viz: one scruple of white vitriol, and one of sugar of lead, are to be mixed with half a pint of water, or of the mucilage of gum arabic, and after standing ten or fifteen minutes, the clear liquor may be strained off. When there is much inflammation, an injection of sweet oil may be used first. If the groins and testicles should become swelled and inflamed, and phymosis or paraphymosis take place, they are then to be suspended in a bag or bandage and all the parts

* Phymosis.

† Paraphymosis.

kept constantly moistened with lead water, (see dispensatory) or with cold vinegar and water, and often renewed. In the mean time ten or fifteen drops of balsam copaivæ mixed with the same quantity of sweet spirits of nitre, may be taken two or three times a day; if a painful incurvation (chordæ) of the part should occur, take a dose of laudanum on going to bed, and rub on a quantity of unguentum hydrargyri, mercurial ointment, night and morning. Linen cloths soaked in laudanum, or cold water, may be applied; and if a hemorrhage or flow of blood from the uretra supervene, it may be checked by immersing the part often with lead water, or cold vinegar and water, and in all cases the patient ought to make use of very low diet, and remain perfectly quiet.

SYPHILIS, OR FOX.

SYMPTOMS.

CHANCERS and buboes are among the first symptoms of this dreadful malady, which, if not checked, goes on to cause an ulcerated throat, nodes, and destruction of the nose and palate. The voice is lost, the hair falls off, foul spreading ulcers show themselves all over the body, the stench of which is insupportable, and before he dies the miserable victim becomes a loathsome mass of corruption.

A *chancre* at first resembles a pimple, with a little pit or depression containing matter, which soon becomes an ulcer, with an irregular thickened edge, covered with a tough, ash-colored matter, the basis of which is hard and surrounded by inflammation. It is generally found on the foreskin.

A *bubo* is an enlargement of the gland in the groin beginning in a hard lump, not bigger than a bean, and increasing to the size of a hen's egg.

A *node* is a hard tumor formed on a bone.

TREATMENT.

Some of the preparations of mercury must be taken until the system is fully charged with the medicine, which may be known by a soreness of the mouth and gums. Calomel, the blue pill, and unguentum hydrargyri, are the preparations of mercury most generally used. The two first are used internally, the last, externally. Three or four grains of calomel, or one blue pill, may be taken night and morning; or

the system may be charged by rubbing the groins twice a day with mercurial ointment, at the same time calomel may be taken by the mout . When the mouth becomes sore, omit the mercury and take a tea-spoonful of sulphur in milk or flaxseed tea, nig t and morning for a few days ; after which the mercury is to be resumed and continued in the same way for ten or twelve days after the total disappearance of all the symptoms. In scrofulous and debilitated habits, the nitric acid is better than mercury ; ten or twelve drops, diluted with water to a convenient sourness, may be taken three times a day until the gums begin to be sore ; alternate them for a few days with a decoction of guaiacum and sarsaparilla, after which resume the acid, and continue it in the same way until the disease is cured. As for the chancres, touch them with lunar caustic, and then apply a piece of rag to them smeared with precipitate ointment. If they are situated under the foreskin and it cannot be drawn back, the foreskin must be slit up. If there is a bubo, apply thirty leeches, and after they are taken off, cover it with several blisters, one after another ; if this does not prevent its increasing, and the formation of matter is inevitable, then apply bread and milk, or flaxseed poultices, and as soon as a fluctuation of matter can be felt, open it with a lancet. The patient should be kept still, the bowels open by some gentle physic ; and in full habits, the diet should be light and cooling. The parts must be kept clean by washing with milk and water or soap suds ; and in order to prevent the disease, after a suspicious connection, the urine is to be discharged, and a wash of diluted spirits, or strong soap suds should be immediately, and thoroughly used. The sure method, however, of preventing the disease, is to avoid the cause ; for how “ can a man walk upon coals and his feet not be burned ? ” SOLOMON.

GLEET.

Is the weeping of a thin glairy fluid, like the white of an egg, from the urethra, and is caused by a long continued clap.

TREATMENT.

It is very difficult to get rid of, and frequently defies every effort made for that purpose. It must be attempted, however.

by the daily use of the cold bath, and thirty drops of the muriated tincture of iron (see dispensatory) may be taken three times a day, for months together, in a glass of the cold infusion of peruvian bark ; or balsam copaiivæ, in doses of twenty or thirty drops, three times a day, a decoction of bearberry, (*arbutus uva ursi*, see disp.) may be used with advantage. In the mean time dissolve twenty grains of alum in half a pint of water, and let some of this be injected up the urethra two or three times a day.

In every stage, and particularly in the last mentioned, take one ounce of cubebs, same of sulphate of iron, (copperas) and put them into a quart of gin, and drink several times a day of it, using morning and evening salts and cream of tartar mixed together, in a dose of half a table-spoonful. The effect is so sudden that the patient will imagine himself well in thirty-six hours, but he must continue it for a week or two, taking a mercurial pill occasionally to eradicate it completely.

CHAPTER V.

OF CONTAGION.

Contagio, from contango ; to meet or touch each other.

THIS is divided into common and specific contagion.—Those diseases which arise sometimes from contagion, and sometimes from the operation of other causes, are said to arise from common contagion, of this kind are catarrh, cynanche, mumps, erysipelas, ophthalmia, typhus, and scarlatina. Those which cannot be produced by any other way than by contagion, are said to arise from specific contagion ; of this kind are small pox, measles, the plague, hydrophobia and syphilis. The principle of contagion is, those morbid or putrid effluvia that arise from decayed vegetable and animal substances, and from a person laboring under disease.

The principal circumstances which operate to develope it are, ill ventilated apartments, want of cleanliness, trouble, previous weakness, excessive fatigue, unwholesome or scanty diet and a peculiar state of the atmosphere.

There is much controversy among medical men with regard to the mode in which contagion produces its effects upon the system ; *but the fact is, that no one knows, and after*

you have pored over volumes on this subject, you will know no more about it than when you first learned the definition of the word; nevertheless, you will know just as much about it as any of them. Diseases which arise from contagion, are most apt to be of the low typhoid form.

There are a few conjectures regarding the manner in which their influence is exerted on the animal economy, which it will be proper to notice. "Great attention has been paid by Dr. Hoggarth and others, to determine the distance to which the noxious effluvia extends, and at which they operate in exciting disease. There is reason to believe that this varies in different cases, and that the plague, typhus, and small pox, have in this respect their several laws. The subject, however, does not appear to have been yet investigated with sufficient accuracy to enable us to lay down any established points of doctrine with regard to it. It is not exactly known how far the sphere of contagious influence is affected by ventilation. In the case of continued fever, we are warranted in saying that, a free circulation of a pure and cool air renders the contagious particles comparatively inert, and that concentration is nearly if not altogether indispensable to the activity of contagion."

Thus with great pretensions in the onset to tell much, and the concluding assurance that they know nothing to tell; authors have written volumes which might be quoted, and as little to the instruction of any one, as the above.

It is supposed that the means of prevention are, to decompose it, or render it inert, by scattering the concentrated particles. The latter of which must be effected by thorough ventilation, and the former by fumigation, which is considered by people of sense as rather a doubtful remedy. They are prepared in the following manner: to make nitric acid gass add some salt petre (nitre) to a little heated sulphuric acid, in glass or earthen cups, at the distance of twenty or thirty feet apart; or to make muriatic acid fumes, moisten common salt with sulphuric acid, (oil vitriol,) in the same manner. Sulphur burnt affects the breathing and injures the patient. To make oxymuriatic or chlorine, mix powdered manganese and common salt, half ounce each, add a tea-spoonful of water and half a tea-spoonful sulphuric acid, from time to time, and you will have a constant supply of the gass.

FOMITES.

BODIES that receive, or to which contagious particles attach themselves, are called fomites. In these they often remain a very long period of time, and subsequently renew the disease with all its former, and frequently with increased virulence. The walls and wainscoting of the room, beds and furniture, and the clothes of the patient are those which generally retain the contagious particles, and are more dangerous than the body of the patient, or even than the dissection of the body. The poison of contagion is not so apt to affect those who are constantly exposed to it, as those who are not.

The rules of prevention are to remove from the source of contagion, observe the strictest cleanliness, occupy the upper stories of the building, letting the air freely circulate, fumigation as before mentioned, and the washing of the furniture and clothes, and exposing them to the free air. Camphorated spirits and the various aromatics about the room and the body of the patient, are also recommended.

GENERAL TREATMENT OF ALL FEVERS, AND OTHER COMPLAINTS.

RULE 1st. In fevers and every complaint, whatever it may be called, if you find the pulse quick, hard, full, and strong, the headache, tongue foul, skin hot, or those marks which denote it of an inflammatory nature, remember the plan is to reduce it by bleeding, purging, low diet, drinking plentifully of cold water and lemonade, rest, &c.

RULE 2d. If on the contrary, the pulse be small, soft, feeble, and intermitting, the tongue dark, and great debility or weakness is evident, reverse the whole plan; the diet must be generous and nourishing; the bowels opened with gentle laxatives, and the strength supported by bark, quinine, wine, and other tonics of various kinds. It is necessary, however, to distinguish the weakness here meant, from that state of debility which arises from excessive action, from the stuffing up of the vessels, and which requires the lancet. In that state which requires tonics, the pulse is small, soft, sometimes like a thread, and quick. In the other, which requires

the lancet, the pulse is slower and full, giving considerable resistance to the pressure of the finger.

RULE 3d. If in addition to the symptoms mentioned in the first part of the second rule, the tongue should be covered with a black coat, foul dark looking sores form about the gums and insides of the cheeks, the breath be offensive, &c. the same class of medicines is to be vigorously employed, and a free use of acids and other antiseptic articles must also be adopted.

RULE 4th. Severe local pains, as in the head, side, &c. require the use of the lancet, purging, and blisters to the part.

RULE 5th. Incessant and earnest entreaties on the part of the sick, for, or longing after, any particular article of diet, if steadily persevered in, may be safely indulged, whether the use of it agrees or not with our pre-conceived ideas on the subject.

RULE 6. In all fevers, when the pulse is quick full and strong, the skin burning to the touch, and there is no perspiration, dash cold water over the head and shoulders of the patient, wipe him dry and put him to bed. If in consequence of this, a chill should be experienced, and the pulse sink, give warm wine, &c., and omit the water for the future. But if a pleasant glow over the whole frame should follow the affusion, and the patient feel relieved by it, repeat it as often as may be necessary.

RULE 7. Observe carefully the effects of the various articles of food, as well as physic, upon your own body, and choose those which experience proves to agree best with you. It is a vulgar but a true saying, that "what is one man's meat is another's poison," and every man who thinks for himself may *know* his own constitution much better than any doctor can *guess* it for him.

RULE 8. Keep a sick room always well ventilated.—Plenty of fresh air is an important remedy in all diseases. It is not meant by this that the patient should be exposed to a direct current of air, which should always be avoided by well or sick.

OF THE PULSE.

THE pulse is nothing more than the beating of an artery. Every time the heart contracts, a portion of blood is forced

into the arteries, which dilate and swell to let it pass, and then immediately regain their former size, until by a second stroke of the same organ, a fresh column of blood is pushed through them, when a similar action is repeated. This swelling and contracting constitutes the pulse, and consequently it may be found in every part of the body where the arteries run near enough to the surface to be felt. Physicians generally feel for it at the wrist, because it is more convenient.

The strength and velocity of the pulse vary much in different persons, even in a state of perfect health. It is much quicker in children than in adults; and in old persons it grows more slow and feeble. The pulse is increased by running, walking, riding and jumping; by eating, drinking, singing, speaking, and by joy, anger, &c. It is diminished by fear, want of nourishment, melancholy, and by whatever tends to debilitate the system.

A full tense and strong pulse, is when the artery swells boldly under the finger, and resists its pressure more or less; if in addition to this the pulsation be very rapid, it is called quick, full and strong; if slow, the contrary. A hard corded pulse is when the artery feels like the string of a violin, or a piece of tightened cat-gut, giving considerable resistance to the pressure of the finger. The soft and intermitting pulses are easily known by their names.

In feeling the pulse, three or four fingers should be laid on it at once. The most convenient spot to do this, as already mentioned, is the wrist, but it can be readily felt in the temple, just before and close to the ear; in the bend of the arm; at the under part of the lower end of the thigh among the hamstrings, and on the top of the foot. There are two kinds of blood vessels in the human body, arteries and veins. The arteries carry the blood from the heart to the extremities of the body, where they are connected with the veins, which bring it back again. An artery pulsates or beats; a vein does not.

In all complaints, and especially fevers and bowel complaints, the importance of clothing the patient in flannel cannot be too strictly enjoined. Flannel worn next the skin serves as a constant stimulous, and keeps up the circulation upon the surface, and thereby diverts the circulation, and relieves the oppression of the internal parts.

PART II.

DISEASES OF WOMEN AND CHILDREN.

CHAPTER I.

THE importance of this subject must be obvious to the most superficial observer ; especially important, is the study of the preservation of health to females, because on them the affections and passions of body and mind operate with threefold force; and the natural construction of their systems, and constitution of habits, being complex and delicate, renders them more susceptible of disease than males ; and those diseases peculiar to them are of such a nature, that they insinuate themselves into the constitution unobserved by those who are unacquainted with the subject of health, entwining themselves insidiously around the pillars of health and life, until they encircle the whole, and the friend, the sister, the mother, and wife, are hurried to a premature grave.

And aside from the above, it is important that they should make this part of the work their particular study, for to them is entrusted the care of the health, and first principles of the education of children, and consequently the country's future hopes. It is presumed that in this enlightened age of the world, there are but few, if any women, who have the immortal honor of being mothers, that are so unnatural as to force their tender infants into the arms of a stranger to be reared, when it is possible to bring them up at their own breasts.

And further, I urge the necessity of mothers rearing their own children, from the premises of its being, not only natural, but conducive to the health of the mother as well as the child ; upon the ground of the almost impossibility of employing any, but the ignorant, and those of the very lowest order of society, to undertake the task ; thus those instructions and moral precepts are not given, when the heart is most likely to receive and retain them, which is so important at this period, and which a child is sure to receive from a tender parent.

With respect to the *young* ladies, the general habits of

some are much to be regreted. Impressed with the mistaken idea, that slender and delicate forms are essential to beauty, they destroy the tone of the stomach, and produce a withered, ghastly paleness, by *drinking vinegar* ; prevent the healthy action of the lungs, by *compressing the ribs with corsets and tight lacing* ; and by the use of light dresses in cold weather, they bring on incurable consumptions. The fact is, that beauty is not the work of art, but the gift of nature ; and even those to whom nature has not been lavish in her bounty, will find that habits of exercise, cleanliness, temperance, cheerfulness, and modesty, are the best cosmetics, and will render their persons much more agreeable than many of them whom they now endeavor to imitate. Among these cosmetical beautifiers, there is none more important than *exercise* ; it is this, indeed, that gives beauty to the female form, and strength to her constitution ; that imparts to her cheek its loveliest colors ; to her eye, its most bewitching brightness ; and alike qualifies the mind for thought, and the heart for love. But how different is the female who leads an inactive and sedentary life ! This habit of idleness, too generally looked on as proof of a fine modern lady, seldom fails to relax the system, to retard the circulation, vitiate the blood, and obstruct the secretions. Hence, that chalky paleness of the face, that faintness of the eyes, indigestion, flatulence, weak nerves, low spirits, and irregularities of nature.

Yes, many a girl by constant muffling and housing herself, by dreading that the sun should ever kiss her cheek, or the morning breeze disturb her ruffles, by much indulgence in bed, and other imprudencies, renders herself so exceedingly pale, and delicate, and puny, that her appearance is better fitted to damp love than to excite it.

PERIODICAL COURSES, OR MENSTRUATION.

THE commencement and regular continuance of this is absolutely essential to the health of females ; and though not a disease, yet it lays the foundation of most complaints peculiar to females. And when from any cause they do not come on at all, the person is always sickly, and generally dies in a few years. The courses in this country generally come on about the fourteenth year of age, sometimes not sooner than the seventeenth or eighteenth ; they are preceded by uneasy

feelings, pain in the loins, with alteration in the appearance of the countenance. It recurs once in about four weeks, when the patient is in health and does not nurse, and continues above thirty years in this climate.

The first deviation from a natural course that I shall notice, is where it is altogether wanting, or unusually trifling in quantity. When it does not appear nor yield to the common treatment, hereafter described, it must be ascertained if there is not a mechanical obstruction, which is sometimes the case, the operation is attended with no danger, nor as much pain as blood letting, (see surgery.)

The treatment for obstructions arising from other causes must be regulated by the particular circumstances. The warm bath, sea-bathing, or a course of Harrowgate, or other mineral water, when practicable, will generally prove beneficial. It is proper in the first place to give a cathartic of calomel and rhubarb, and then to give the preparation of steel, take iron rust and peruvian bark, equal quantities, of this take a tea-spoonful thrice a day, mixed with any thing convenient; or take of the tincture of iron fifteen drops thrice a day, in water or tea. The diet must be nutritious and easy of digestion; the patient must be warmly clothed, and the bowels must be kept regular in every variety of this complaint. Riding on horse back, electricity, or change of climate, aid in producing the desired effect.

The next is painful menstruation; this is attended with excruciating pains in the loins, lasting two or three days, the discharge is generally scanty, the pains bear down violently and are often accompanied with spasms, or colic, headache, and occasionally with vomiting. Some days before the expected period, the patient should take three or four bilious pills, and every night the warm bath, or setting over the steam of hot water, should be resorted to, and exposures to cold must be carefully avoided. When the pain begins, the patient should drink freely of saffron or tansy tea, together with warm applications to the lower part of the abdomen, and setting the feet in warm water; if the pain is very severe, a dose of half tea-spoonful paregoric, or thirty drops laudanum, may be given; tincture of valerian, sweet spirits of nitre, &c. joined with these when there is colic or spasms of the stomach or bowels.

But the most certain way to procure permanent relief, is, in addition to the warm applications, to bleed moderately, and

give a smart dose of physic ; a part of which dose should be aloes and calomel, but other physic will answer ; after this has operated the anodyne, as above, or opiates must be given. After the patient has recovered from this, in order to prevent it at any future period, she must take during the interval, of the preparations of steel, muriatic tincture of iron, &c. (which see) in their usual doses thrice a day, with other tonic medicines.

With regard to an immoderate flow, every woman knows what its proper quantity and duration should be, with respect to herself—but not with respect to another ; for what is to one woman a proper quantity, might be to another an immoderate flow, according to the difference in the constitution and temperament. It is too frequently supposed that the flooding arises from mere debility, and under that belief they take cordial and stimulating medicines ; but most generally this is not the case, and by such improper treatment, the flow is increased, and the habit rendered feverish.

In every case where the system is feverish, especially in plethoric and full habits, the antiphlogistic plan must be adopted, such as bleeding, cooling drinks of nitre, or cream of tartar, a carthartic of salts, rest, and low diet.

When the hemorrhage or flow is sudden and profuse, any clothing which interrupts the free circulation of the blood, should be instantly removed, and the patient placed in a recumbent posture. The drinks should be as cold as possible, and cloths dipped in cold vinegar and water, or in a decoction of oak, or peruvian bark, adding a little brandy, should be frequently applied to the loins and abdomen. If these means should not be sufficient to stop it, dissolve about three drachms of powdered alum in a pint of the decoction of bark, and use some of it for injection. The following astringent medicine may also be taken internally, viz :

Take of sugar of lead and ipecacuanha, each six grains, opium, one grain.

Mix it up with syrup or molasses, divide into four pills, and take one every three hours as long as may be necessary. To confirm a cure and prevent a relapse, the body should be strengthened by cold bathing, proper exercise, mineral waters, a nourishing diet, such as light broths, port wine in moderation, and an easy cheerful mind.

FLUOR ALBUS, OR WHITES.

A milk diet, change of air, sponging with cold water every morning, attention to cleanliness, and proper exercise, are often sufficient to effect a cure. However, in addition to this plan, when the disease arises from debility, salts of tartar, or lime water, in the common dose (see dispensatory) may be given to correct the acrimony of the humours; or the balsom capaiivæ may be used for the same purpose, and at the same time, iron rust (corbonate of iron, see disp.) should be taken three times a day to strengthen the system, or the tincture of the muriate of iron (see disp.) in doses of ten to fifteen drops, will have the same effect. To restore tone to the parts, it will be necessary three or four times a day to inject a little of the following mixture, by means of a syringe, viz: Rub together one drachm of white vitriol and ten grains of sugar of lead, and dissolve in a pint of water. Or one drachm of powdered alum may be dissolved in one pint of the decoction of white oak bark, to be used in the same way. In the mean time, one drachm of kino, one of peruvian bark, one scruple of grated nutmeg, and half a drachm of powdered alum, are to be mixed with syrup or molasses, and divided into about thirty six pills, of which two or three may be taken at once two or three times a day, and washed down with a glass of good port wine.

CHLOROSIS, OR GREEN SICKNESS.

The most important feature of this complaint is a chronic obstruction of the course of nature, in consequence of which, the skin loses its natural mixture of red and white, and becomes pale and sallow; the eyes are pearly and appear sunk in their orbits, with a dark circle beneath them; the lips lose their colour, and there is a degree of dropsical puffiness over the whole body. The eyelids are swelled in the morning; there is pain and a sense of weight in the loins, side, and legs; languor, aversion to all kinds of motion or exercise; the least exertion occasions fatigue, palpitation or fainting; indigestion and costiveness prevail, the patient is very nervous and hysterical, and there is generally but little appetite for any thing else except lime, chalk, &c.

TREATMENT.

After cleansing the stomach by a gentle emetic, pour fifteen drops of the tincture of muriate of iron into a glass of cold water, or into a decoction of peruvian bark. Drink this two or three times a day an hour before eating, or two hours after. Or chalybeate powders of peruvian bark and iron rust mixed together in equal quantities, may be taken in the dose of a teaspoonful, in port wine, or molasses, three times a day.

In many cases of green sickness, attended with symptoms of approaching consumption, the tincture of iodine in the dose of ten drops, in a glass of sugared water, three times a day, has effectually removed the complaint in the course of five or six weeks.

TURN OF LIFE.

It is generally between the forty-fifth and fiftieth year that menstruation ceases, and if care is not taken at this critical period, it often happens that chronic, and sometimes fatal complaints arise. It seldom stops all at once, but gradually ceases, being irregular both as to time and quantity. In those plethoric habits, all malt and spirituous liquors, wine, and animal food, ought, for a time, to be excluded from their diet. Regular exercise should be taken, and the body constantly kept open by the tincture of senna, epsom salts, or any other mild laxative medicine.

If giddiness, and occasional pains in the head affect the patient, leeches to the temple will be found very beneficial; and if ulcers should break out on any part of the body, they ought by no means to be healed up, unless a drain by means of a seton or issue, be established in some other part.

HYSTERICAL FITS. (HYSTERIA.)

Because it happens to be known that they are not *immediately* dangerous, or from some other strange infatuation, these fits are treated by many as a matter of no consequence, and even as though the patient herself might prevent them. Now it is just as *well* known, that fits of the ague and fever are not immediately dangerous; and it is equally certain that the former is no more under the control of the patient's will, than

the latter. Long continued agues end in chronic inflammations of the liver and spleen, finally producing death—and hysteric fits are equally fatal after a few years, terminating in epilepsy.

SYMPTOMS.

In a fit of hysterics the patient is seized with an oppression of the breast, difficult breathing, with a sense of something like a ball ascending into the throat. There is loss of speech, violent convulsive motions, such as writhing of the body to and fro, involuntary screams, frequent laughing and crying, distressing hiccup, and many other wild irregular actions; after which there is general soreness over the body, the spirits are low, the feet cold, the urine clear and limpid, and in great quantity. In fainting, the pulse and breathing are entirely stopped; in hysterics, they are both perceivable.

CAUSES.

A nervous, irritable frame of body, distresses of mind, weakness, inactivity, late hours, and heated rooms, combined with *irregularities* of nature, are the causes that generally bring on hysterics; it is more immediately, however, occasioned by the latter cause, inasmuch as the fit most commonly comes on at the particular time when they *should* be regular.

TREATMENT.

In young and plethoric habits, blood may be taken during the fit; but in delicate constitutions, it is not to be recommended. The best way of throwing off the fit, if the patient can swallow, is give an emetic; and after it operates, a pill of opium, or a dose of laudanum and ether, should be give in order to settle the stomach, and prevent a recurrence of the spasms. If the emetic does not operate as physic, a cathartic may be givea in the course of a few hours, and after its operation, the system should be strengthened by taking some kind of tonic medicine, such as valerian, or peruvian bark, columbo, iron, or steel rust, or the tincture of the muriate of iron, (see disp.) While the fit is on, the feet should be put in warm water, singed feathers, camphorated spirits; harts-horn, &c. should be applied to the face and nostrils until the patient can swallow, and a teaspoonful of ether and laudanum, or a tincture of assafoetida, or a pill of the same, is then very proper to be given before taking the emetic. Glysters

of gruel, adding a teaspoonful or two of laudanum, cold water sprinkled on the face, and cool air in the room are likewise beneficial.

CHAPTER II.

PREGNANCY.

This is attended in civilized society with many disagreeable sensations, and often produces diseases which require attention. But women who bear children enjoy more certain health, than those who do not. Immediately after conception the courses almost invariably cease; the countenance changes, and many women become irritable, possessing a disposition of mind that renders them easily ruffled, and induces a strong propensity to be indulged in humours, diet, &c. that on other occasions they are exempt from.

Sickness at the stomach, dizziness of the head, faintness, heart burn, and oppression, with disturbed sleep, and frightful dreams are present in an early period of most cases. As the period advances uneasiness is felt about the breast and abdomen, with pain striking down, and the abdomen is perceptibly enlarged, at the end of the fourth month, and quickening soon becomes sensible, which is at first with many attended with various nervous affections. Soon after this the countenance becomes more natural and sickness, and faintness disappears, and the patient enjoys tolerable health. Others again suffer severely from various diseases which I now proceed to describe.

Sickness, when it does not materially impair the health, is favourable, because it prevents the formation of too much blood in the first months which is one of the chief causes of abortion. But if there is efforts to vomit, with emaciation, and debility, inducing nervous complaints, the patient must be bled, and take a dose of physic, or a light emetic, and use a light and nourishing diet, and the means recommended for heart burn; which most commonly originates from the same causes that produce sickness and vomiting; if there is a cough and raising of phlegm, an emetic is best, paying attention to the bowels, but if there is sour taste in the mouth, lime water, chalk or magnesia, or small doses of soda must be taken. The

stomach must not be over loaded, and food that does not set easy upon the stomach, must be avoided, and if the woman is of a full habit she must be bled.

Unnatural cravings : These should always be indulged when they are for any article of diet. It is not in the *nature* of things for the longing or fears of the mother to have any *influence* over the *child*.

The breasts, from their great sympathy with the womb, often become swelled and painful. In general all that is required is to keep the breasts quite loose, and covered with soft flannel or fur. If the pain is much, warm olive oil should be rubbed on them, and the covering of flannel or fur must be reapplied, and if there is marks of general fulness the patient must be bled and take a dose of salts. If the breasts suppurate a free outlet for the matter must be made and the strength supported by bark and wine.

Palpitation of the heart, is a most disagreeable feeling, and where it attends the whole period, it must be treated as other nervous symptoms in this state ; but when occurring in the latter months it is the effect of disordered stomach, and can be relieved only by emetics, laxatives and a spare diet.

Hysterical and fainting fits, are apt to occur about the fourth month, and though alarming in their appearance, are seldom attended with danger. Opiates always afford relief ; but a cathartic, invigorating diet, exercise in the open air, &c. must be given as soon as the immediate symptoms are allayed in order to produce permanent relief. To assist the opium in the first symptoms, give preparations of camphor and tincture of valarian. Spiritous and fermented liquors are hurtful in every stage of pregnancy.

Bearing down : If there is heavy bearing down, occasioning difficulty of urine, and a constant call to stools, the patient must take her bed, and lay with the hips elevated, and keep the bowels regular by gentle laxatives ; growth and the natural rising of the part, will in a week or two have an effectual, and the only cure.

Costiveness and piles : women are too apt to disregard costiveness, and it becomes the cause of many painful and hazardous consequences. They should have a passage, every twenty four hours and they may keep themselves regular by the use of a considerable proportion of vegetables in their diet, and taking daily a laxative pill, or any gentle physic. In the latter months so much more blood being necessary, the food

is drained of all its thin part, hence the hardened state of the evacuations, and the costive state of the bowels. When the woman has went some days without a passage, in addition to taking a dose of physic, clysters must be administered. When there is a looseness of the bowels, a dose of rhubarb must be taken before any thing is given to check it, as it arises from matter in the bowels that wants removing.

Piles during pregnancy cannot be completely cured but the pain must be allayed by occasional blood letting and open state of the belly. If there is much swelling, astringent applications as solution of sugar of lead, ointment of powdered galls, &c. will be useful, if there is throbbing pain with feverish symptoms, leeches should be applied to the part, and the patient should set over warm water, or apply warm fomentations to encourage the bleeding. Sulphur mixed with equal parts of cream tartar, is useful in every case of piles. Ointment made of powdered opium and fresh butter will be useful. These remarks are applicable only to piles during pregnancy, for further, see Hemorrhoids.

Swellings of the legs and feet : this occurs toward evening in ordinary cases, and is caused by the increased part pressing upon the vessels and preventing the return of the fluids to the heart. But when it extends above the knees, and does not subside upon going to bed, it demands attention. The woman must keep from standing on, or letting her legs hang down, use a spare diet, and keep the bowels natural. When the symptoms are urgent, bleeding and active purgatives are indicated. Where it appears to arise from weakness, tonics and a more generous diet must be allowed. I have seen several cases where the swelling extended to the body and in appearance was truly alarming, but which subsided immediately after delivery, (the only permanent cure.)

Pains in the back, belly, and loins ; arises from various causes, as the change of the situation of the womb and its pressure on the neighbouring parts. When they are slight, attention to diet, and gentle laxatives are all that is necessary, where they are very violent, small bleeding, and cathartics followed by an opiate will be necessary. Coughs and difficult breathing are relieved principally by small bleedings and saline cathartics.

Cramps : these cannot be entirely relieved until after delivery. The means to palliate them are rubbing them with flannel, or flesh brush, or the application of landanum, or

opodeldoc, ether or camphorated spirits to the part affected. Where the patient is of a full habit, bleeding will be proper ; where the bowels are loose opiates may be given.

Jaundice : This attends the latter months of pregnancy in some instances, characterized by violent pain in the side, and excessive sickness and retching, and a deep yellow color of the skin. An emetic of epicack, and bleeding when the pain is severe, warm fomentations to the pained part, and doses of opium, followed by laxatives to counteract the effects of the opium, are the proper means to be employed.

Colic pains, if attended with costiveness, are readily relieved by physic. But if the bowels are in a proper state, colic pains are readily relieved by opium, or laudanum and a proper attention to diet. It will perhaps be as well in all cases to take a cathartic of salts or pills first, and follow this with the opiate.

Difficult of urine : this proceeds from the pressure of the womb, and therefore cannot be entirely removed until birth takes place. But to give relief as cases occur, the patient must lay down upon the bed with the hips elevated, and use a pan. A roller should be fastened around the abdomen so as to afford gentle support to the part which by pressing down produces the difficulty.

Convulsions, to prevent which ; if the woman has violent pain in the head, cramps in the stomach, deadly sickness, and swelling of the face and upper parts of the body, there must be a large quantity of blood drawn from a vein, and a cathartic given. If the fit takes place, the whole body and limbs are violently agitated, the face is livid, the tongue found betwixt the teeth, and bloody froth works out at the mouth, and the patient is insensible during the fit ; which lasts from ten, to sixty minutes. In every case something should be put betwixt the jaws to keep the tongue from being hurt. The patient must now be bled unusually large, and if labour comes on as is frequently the case that must be attended to, and as soon as the patient can swallow, she must take preparations of camphor, castor, valerian, &c. but opium will be injurious. Cathartics must be given, 10 grains calomel, 12 grains of jollop, or rhubarb, &c. The only way to distinguish this from hysteric fits is that, in the latter the patient can be roused up and made sufficiently sensible to take medicine, but not so in convulsions.

Flowing during pregnancy : if this is slight and not at-

tended with pain or fever, all that is necessary is for the patient to go to bed, and keep quiet. But if there is flushings of the face, heat of the hands, thirst, and pains of the back followed with a considerable discharge of blood, the child will most probably be lost; to prevent which the patient must be confined to bed, excluded from company, kept cool and quiet, and her drinks must be cold. She must be bled, and take a large dose of opium or laudanum, which must be followed in a few hours by a cooling purgative.

Abortion or miscarriage, is the birth of the fœtus at any period when it cannot live; which must be before the seventh month. The symptoms differ in different individuals, but those most common are a cessation of the breeding symptoms, with a sense of weight and coldness in the lower part of the belly, pains in the back and loins, bearing down with regular intermissions, and discharge of blood. Whenever any of these symptoms arise, every exciting cause must be avoided, such as walking, dancing, all kinds of exertions, colic pains, looseness of the bowels, passion, surprise, heated rooms, tight lacing, &c. A woman that has once miscarried is liable to again; the periods at which it is most likely to take place are between the fourth and fifth, and at the end of the seventh months, but may happen at any other period.

There is one species of abortion which is almost as apt to occasion the death of the mother as the child, that is where it is brought on by artificial means; and if the monster escapes with life, she is morally guilty of the blood of her own offspring, and if detected, a subject of the states prison.

When there is an appearance of blood which threatens miscarriage, the patient should be put to bed and kept cool and quiet, and if of a full habit, or has symptoms of fever, she ought to be bled a half a pint, or take large doses of opium. If there are no regular bearing down pains, nor large clots of blood be expelled, miscarriage may be prevented. But if the above symptoms are present it cannot be avoided. When all has come away opiates may be given to allay the pain and moderate flowing, and a roller or towel should be passed moderately around the lower part of belly. If this happens in the early months the patient should remain in bed a few days, and on the second or third day she should begin to take tonics as bark, quinine, vitriclic acid, &c. After miscarriage in the latter months the treatment must be the same as after mature delivery. When a woman has once miscarried

she should be particularly cautious; at the period of her former misfortune.

LABOR.

IN the earliest ages of the world this subject received the attention of persons, who made pretensions to ability in assisting nature in her efforts, and they had their patrons.

Such are the apprehension of women under these circumstances, and so acute is the pain in the final termination, that they willingly submit to any treatment from which the pretender promises relief. It was this that caused women, who made it their business to attend in such cases, to multiply their medicines and means of treatment, knowing their employment depended more on pretensions, than any actual service they could render, and as the whole was a process of nature, it was certain and become apparent, that serious injury resulted from the over officiousness of these old hags, and called loudly for reform; not to teach how and what to do, but to teach when and what not to do, and that nature in ninety and nine cases out of a hundred is the only necessary accoucher.

But no sooner had physicians undertaken this reform than finding it to be a source of immense gain, they multiplied the names of diseases peculiar to this state, and couched them in terms unintelligible to all but themselves, and established arbitrary divisions of labor, covering all with technical terms and ambiguous phraseology; teaching that it was essential to understand these in order to practice successfully, and in doctor style, thus making the last evil worse than the first.

Because they have labored to, and in a great measure have succeeded, in making people believe, that in *every case* a physician is necessary, and so far does this now exert its influence, that in the absence of the doctor it is frequently the case, that a beardless student fills his place, who is less acquainted with the business than any woman in attendance.

That, for attending such cases the physician cannot be conscious of having rendered an equivalent for the money he has received, is not the greatest objection to the employment of male-midwives; but it is forcing a barrier that should not be approached, and entering upon premises too hallowed for the *even ceremonious* intrusion of the most refined of the

faculty. There are but few cases occurring in which assistance is requisite, and not one in ten thousand, but what the husband or any careful woman, (whose business decency tells us it properly is,) may manage with perfect safety both to mother and child, by attending to the directions given in the following section, or by doing what naturally suggests itself to be done.

All are ready to admit that it is indelicate, that it shocks the modesty of the woman, and even causes unpleasant sensations to the husband, to employ a male midwife; believe me then, when I tell you as an honest man that it is all a farce; may we not then anticipate a speedy reform in this branch of medical speculation? I have attended many cases where I found the attendants alarmed, and some in tears, from supposing that the woman should have had help sooner; fearing the worst consequences from the delay; but, admitting that "the doctor knew best," they would calmly wait for hours when in nature's own time all ended well.— And I pledge myself as a physician, that all honest doctors will tell you, that labor is the work of *nature*, and she generally accomplishes it *best* when left to herself.

Natural labor generally happens in about two hundred and seventy-three days: if a woman is suddenly taken with severe pain near the end of her reckoning, she has reason to apprehend the commencement of sickness, especially if they go off and recur again at intervals, producing shews occasionally followed by cold fits, with frequent occasion to get up. These by degrees increase occurring at regular intervals of ten or fifteen minutes, leaving the patient quite easy when they go off. But there are instances in which a woman would be very liable to be deceived, and remain in anxiety for several days; they are spurious pains, happening most commonly toward evening, being very troublesome during the night. They are trifling and irregular, and produce no sensible effects upon the part. But the circumstance which chiefly distinguishes them, is that they become less frequent and lighter on getting out of bed and changing the posture. If in this state the bowels are costive, give a cathartic, and after it has operated, give an opiate. Or, if the patient is of a plethoric habit, bleed a few ounces and give a dose of laudanum. After the regular steps have proceeded for some time, the pains come on with great regularity, every five or six minutes, and all is gradually brought forward, and the membranes may be felt gathering like a small bladder filled with water, which subsides

as the pain goes off, but increases when it returns, and it is from the rapid or slow increase of these membranes that we judge of the continuance of the sickness. After a time these give way, and a quantity of water escapes; but if this does not happen until they are nearly without they should be ruptured by pressing the finger against them during a pain.

After this, labor proceeds more rapidly, and is generally completed in a short time; though occasionally it is protracted for many hours. The woman is generally alarmed in the commencement, but this must not be indulged in; two or three cheerful friends should be present to inspire her with spirits and courage, these are all the assistants that are necessary. The patient must be kept cool and quiet, but not confined to any one posture, and she must not be interfered with. This frequent examination is of no possible use, but injurious to the patient. When every thing continues regular, no medicine is necessary; unless there has been a costive state of the bowels, in which case it will be proper to give a dose of salts or oil, or an injection.

Heating drinks must never be given in the beginning. Vomiting is rather of advantage than otherwise, but if excessive, the patient may drink of strong tea, and take a few drops of hartshorn; if this does not give relief, a small bleeding or small doses of opium, given occasionally, will be effectual. The woman must be permitted to walk about if she has an inclination to, as long as she is able; fits of shivering are apt to supervene, and if the patient has before been in reasonable health, they are favorable, and all must be trusted mainly to the management of nature, and the patient kept composed.

The woman must not be allowed to make violent efforts, towards the conclusion, as time is necessary in order to a safe termination. The child must not be removed until it breathes freely, or the cord ceases to beat; the string must be tied about three inches from the child, so firm as not to admit of blood escaping from the child, it will be safe to tie the severed end also. It will generally be easy to ascertain if there are twins, by feeling the motion of the abdomen, and by the recurrence of hard and regular pains.

In fifteen or twenty minutes after the birth of the child, an attempt must be made to get away the after-burthen, (placenta,) by gently pulling upon the cord, and if it does not come away soon, the right hand must be passed, guided b-

the cord, to the after-birth, and gentle pressure made upon it, at the same time pulling the cord gently with the other hand in different directions. A few minutes will generally be sufficient; there must be no pressure made upon the abdomen; there will generally be sufficient pain without any efforts of the woman; blowing upon the hands, holding salt in the hands, &c., is all a fudge. After putting dry cloths to the patient, she must be got quietly in bed. This is all that is to be done in ordinary cases, taking care however, that nothing is hurried, and the pulling at the cord be not violent, for it might be broken, or even the womb dragged down and materially injured. If the patient has become exhausted by trifling, and aggravating pains, or if the pains suddenly abate and the patient becomes cold and is exhausted, give tansey, black pepper, or ginger tea. But nothing of a heating nature must be given after the child is born; for it will tend to produce flowing, and endanger the life of the woman. Ardent spirits is most dangerous, and yet most used.

Smut rye (*secale cornutum*, or ergot, of the doctors,) is used to hurry on labor. It may be used when from examination we know that labor is pretty well advanced, and when the pains are trifling, or have greatly subsided, and the woman is faint and exhausted. Take a table-spoonful or two of the spurs and steep them in a half a pint of boiling water, and give a table-spoonful once in ten minutes until it increases the pains, then desist; and if the efforts of the system again flag, repeat as before.

A little cold water should be given to the child, and a tea-spoonful of castor oil; if this is done, the child will be almost sure to escape the yellow gum and sore mouth, which proves so very troublesome.

By attending to the above directions, all ordinary cases will terminate with perfect safety. In laying down the above brief rules, I have studied not to use an expression or convey an idea that would be indelicate, or that was not proper, and necessary for every person to understand. To do this there are many divisions, expressions, directions and instruments described by physicians, which I did not deem proper to mention here; and which if forgotten, or even never known, would be better for the world. The celebrated Dr. Burns says, "I do solemnly declare that during thirty-five years practice, in which time I have had many thousand cases, I have not used instruments twenty times."

(N. B. For further particulars on this, see the authors system of midwifery designed for the use of female practitioners.)

Where nature is left to herself and the patient kept cool, and a towel pinned snugly around the abdomen, we have but little to fear from flowing ; but if it does arise, the giving of large doses of opium and small doses of sugar of lead, the hips of the patient considerably higher than her body, and laying cloths wrung, out of cold water, so dry as not to wet the patient, on the bowels, is all that can be relied on ; but they must not be continued until they produce shivering.

CHAPTER III.

INFLAMMATION OF THE UTERUS, OR WOMB. (HYSTERITIS.)

SYMPTOMS.

It begins with a painful sensation of the part, about the second or third day after delivery, which gradually increases in violence without any kind of intermission. The patient experiences great soreness and pain from pressure, and there is soon a great increase of heat over the whole body, with pains in the head and back, extending into the groins, and attended with chills, thirst, nausea and vomiting. The tongue is white and dry, the secretion of milk is interrupted, the lochia or shows are diminished, the urine high colored and scanty, the body is costive, and the pulse hard, full and frequent. It is very dangerous complaint, and must be attended to immediately ; but most of all, the causes that give rise to it should be avoided.

CAUSES.

It is caused by injuries during natural labors, as well as by the improper use of instruments in laborious cases ; by the officiousness of the midwife in hurrying the labors, and by exposure to cold.

TREATMENT.

Unless the patient should be in a state of great weakness, it will be proper to bleed ; and the administration of calomel

in this complaint is very important; ten or fifteen grains of calomel, well mixed in a table-spoonful of castor oil, will be a proper dose. A blister should be applied to the abdomen, over the pain; emollient or mild clysters may be used, and cold water gently thrown into the uterus. In other respects, the puerperal fever must be treated on general principles the same as any other fever; Dover's powders (see disp.) should be given once in two or three hours, with cooling doses of nitre or cream of tartar between, in order to reduce the general fever, and bring out a moisture on the skin. When physic has not been given, and a diarrhœa or looseness with the other febrile symptoms, comes on, it is an unfavorable sign, and she must not be deceived by it and think that physic is not necessary, for it is now indispensably necessary, and a dose of calomel and rhubarb at this time must not be neglected. If the pain abate, and there is a bloody discharge, the patient is then likely to recover, and her strength is to be supported by mild nourishment; but all kinds of cordials and stimulating drinks must be avoided.

Proclapsus of the uterus is known by a relaxation and falling down of the womb, so that it descends to the external parts. It may be occasioned by any course which weakens the general health; by diarrhœa, fluor albus, active purges, external injuries, &c., but most generally it is caused by straining and mismanagement in child birth, or by a standing posture after delivery, where the uterus is very heavy. If it happen soon after pregnancy, constant rest in a recumbent posture on a hard bed, with astringent injections at the same time, will cure it in seven or eight weeks if the patient can only muster resolution, patience, and perseverance enough to give it a fair trial. After pushing it back to its place, it may be kept there by the above means and by external sponging with cold spring water three or four times a day. Cold glysters will also be beneficial, and if the patient will not keep her bed, the use of a pessary will perhaps be indispensable. It should not be above two inches and a half in diameter, and occasionally should be removed and washed. Pregnancy often cures this complaint, for, after the fourth month the womb rises above the pelvis and thus prevents the possibility of its occurrence. Inversion of the womb is when it is turned inside out; retroversim, when it is turned either backward or forward. In both cases, it only needs to be replaced, and the same treatment is then to be pursued as that recommended in prolapsus.

DISEASE OF THE BREASTS.

If any hardness or painful swelling should be felt in either of them, a cooling diet and some gentle physic will be advisable, and the patient should remain in bed, as the weight of the breasts in any other position would increase the inflammation. A large warm bread and milk poultice with the addition of sweet oil or unsalted butter; and the infant should either be applied, or the breast should be drawn by artificial means. It is found that warm poultices will not cause them to suppurate unless the formation of matter has already begun, and when that is the case, the sooner it is brought to a termination, and the matter discharged, the better. When nursing occasions pain merely from the nipples being sore and tender, they may be washed with brandy and water, or a weak solution of alum, in rose water; and an artificial nipple, with a prepared cows teat to tie over it, so that the child may suck through it, will save a great deal of pain to the mother.

CHAPTER IV.

DISEASES OF CHILDREN.

Infant nursing. To set a child upright before the end of the month is hurtful, it should be laid on a thin mattress, which may be held on the lap at any time, in order that the child may always lie straight, and only sit up as the mattress is slanted. The clothing should be very light, and rubbing its legs and whole body with a warm hand or flannel, will take off the scurf, make the blood circulate, and strengthen its limbs. To prevent the legs from being cramped and the toes from turning inwards, its legs should be kept loose, the position often changed, and kept as little in the arms as possible. Want of exercise is the cause of rickets, large heads, and weak joints; by slow degrees, therefore, the infant should be accustomed to exercise, both within doors and in the open air. He should be washed with warm water at first, and making it colder by degrees, he will finally like to be washed

with cold water. And after he is a month old if he has no cough, fever, nor eruption, he may gradually be accustomed to the cool, and then to the cold bath, as it comes from the fountain. This will render him hardy. In drying and rubbing the body the utmost gentleness should be used, especially about the head and bowels, squeezing the head or combing it roughly, may cause dreadful diseases, and even the loss of reason. Bandages round the head must not be used. Caps may be worn until the hair is sufficiently grown, but no longer. Pins ought never to be used in a child's clothes; every string should be so loose as to admit of two fingers between it and the part where it is fixed, and in dressing, the most tender deliberation should be observed.

Infants cannot sleep, too long, and to awaken them with a noise or in a very impetuous manner, is extremely improper, and suddenly exposing them to a glaring light, lays a sure foundation for weak eyes. Let him have his regular sleep in the forenoon and afternoon, and it will then be easy to keep him brisk all the evening until the family are going to rest; undressing and bathing will then dispose him for sleep and quietness during the night. He should never take any spirits, nor drops to make him sleep, milk, water, whey, or thin gruel, is the only proper drink for little ones even when they can run about, and the more simple their diet can be, the more they will thrive.

The bodily habits of boys and girls ought in every respect to be the same. It is too much the case, that parents, being anxious to accomplish their girls, imagine that they must be kept under a certain restraint. Boys are not laced, but poor girls are compressed tight enough to suffocate them, in order to give them an elegant shape; the contrary effect, however, is always produced, for it is the same way of making children round shouldered and deformed.

The yellow gum, is known by a yellow tinge of the skin, with languor, and a tendency to sleep. To cure it, give a teaspoonful or more of castor oil to clear the intestines, and if this should not be sufficient, an emetic of about eight drops of antimonial wine is to be given in a teaspoonful of water; and in eight or ten hours afterwards, half a grain of calomel, or four grains of rhubarb, should be administered. *Vomiting*, when it is bilious, may be obviated by giving one grain of calomel in sugar, followed by a teaspoonful of castor oil the

next morning, and a small blister may be applied to the stomach.

Hiccups, generally arise from a sour stomach and may be cured by giving eight grains of prepared chalk mixed with two grains of rhubarb in a little gruel.

Griping and flatulency, are known by continual crying, restlessness, and drawing up the legs. When attended by diarrhæa and green stools, it is generally relieved by giving a few grains of rhubarb and magnesia; but if the pains are very great, take of prepared chalk, one scruple, tincture of caraway seeds, three drachms, compound spirit of lavender, one drachm, peppermint water, two ounces, laudanum, five or six drops, mix together and give two teaspoonfuls immediately, and as soon as the pain ceases, a cathartic of castor oil will be proper. The above mentioned absorbent mixture may afterwards be continued occasionally in smaller doses, omitting the laudanum.

Diarrhæa, if the stools are green, this will be relieved by a brisk purgative of one or two grains of calomel combined with four or five of rhubarb, according to the age of the child, and after its operation, the absorbent mixture may be given. If the stools are very frequent, slimy, or tinged with blood, it will then be proper to give five grains of rhubarb every four or six hours, and let the food be beef tea, sago, isinglass in milk, or calf's-foot jelly. The body should be wrapped in warm flannel, and a small blister may also be applied to the belly.

Cutaneous eruptions. All that can be done to advantage is to keep the bowels open, and to guard against cold which might drive the eruption inwardly and occasion internal inflammation. If there should be any sickness and vomiting, give the absorbent mixture.

The thrush makes its appearance by little ulcerations in the mouth, tongue, &c. of a white color, and sometimes of a yellow appearance. It is owing to acidity or sourness of the stomach, and nothing is better at first, than to give an emetic, and then a little magnesia and rhubarb, with weak chicken broth as drink. The absorbent mixture will also be proper, and if there is no looseness, give a grain or two of calomel with three or four of rhubarb; the mouth and throat in the mean time should be cleansed by gargles, such as sage tea sweetened with honey, alum water, or borax. The syrup of black currants may be given to children in the thrush in the

dose of a teaspoonful at a time ; it is made by dissolving 24 ounces of double refined sugar in one pint of the strained juice, and boiling down to a syrup.

Falling down of the fundament, happens frequently to children who cry much, or have had a diarrhæa, or from straining on going to stool. If the child be costive, give mild clysters, and if the gut be swelled or inflamed, foment with warm milk, or decoction of oak bark, or wash frequently with cold water. The parts are to be replaced by the finger, and supported by a truss, or bandage. The internal use of tonics will also be proper.

Dentition, or cutting teeth. Leeches, or blisters, may be applied behind the ears. The gums ought to be divided crosswise by a lancet, or sharp knife, and any person can do it as well as a doctor. Instead of giving opium, laudanum, or paregoric, it is better to administer calomel in small doses, for this will promote absorption. The bowels, if costive, should be kept regular by gentle physic, as oil, rhubarb, &c. and if there is looseness, it should not be checked. Instead of any thing hard, let the child nibble at a piece of wax candle.

Convulsions. Children are liable to convulsions from teething, wearing tight clothes, small pox, measles, &c. Bathing in warm water, with a mild clyster, will soon relieve them ; and to make the fit still shorter, cold water may be poured over the face and neck while the rest of the body is in the warm bath.

The rickets. This disorder affects the bones of children, and is generally caused by improper nursing. It usually appears about the eighth or ninth months, and continues to the sixth or seventh year. The head becomes large, and the bones continue separate for a long time ; the countenance is full and florid ; the joints knotty and distorted ; the belly swells, and there is finally a cough and disorder of the lungs. The understanding is generally more forward than common. In this disease cold sea bathing is of great importance, after which the child should be rubbed and placed between two blankets to encourage perspiration. The back should be well rubbed with opodeldoc, or good old rum every night. A few grains of ipecac, or calomel may be given occasionally. Mineral water is beneficial, and so is a decoction of peruvian bark with red wine, used with moderation. Exercise in a dry clear air should be encouraged ; the diet should be light

and well seasoned ; and so far as it can be done without causing pain, the limbs should be kept in a proper situation by the use of some kind of bandage or instrument.

Inward fits. The infant appears as if asleep, the eyelids, however, are not quite closed, but frequently twinkle and show the whites turned upwards ; the mouth, sometimes has the appearance of a laugh or smile ; the breath is either quick, or stops for a time ; the eyelids and lips are pale and dark alternately. The infant startles on the least noise, and sighs deeply, or breaks wind. This relieves him for a little, but he soon relapses into a dose. Whenever these symptoms are noticed, the child may be awakened, and its back and belly should be well rubbed before the fire until wind escapes ; at the same time two drops of the oil of anise or caraway may be given in some kind of drink ; and as soon after as possible a purgative of castor oil, or a grain or two of calomel with two or three of rhubarb is to be given to empty the bowels of whatever crude matter may have occasioned the disorder.

Distortion of the spine. In this affection, an ounce of prevention is worth more than all the cure that has ever been discovered. The child's back bone should be frequently and closely examined, and on the slightest appearance of any deformity, it is to be washed with brandy night and morning, and the child kept in a straight posture both sleeping and waking, cold bathing is also good.

HYDROCEPHALUS, OR WATER IN THE BRAIN.

SYMPTOMS.

THIS affection of the brain occurs most frequently in children between three and six years of age. The beginning or first stage of the disease is marked by the same symptoms of fever as children frequently have from teething, or from worms, or a foul stomach, or from disordered state of the bowels ; such as loss of appetite, thirst, quick pulse, hot skin, disturbed sleep, melancholy, uneasiness, sickness at the stomach, and sometimes vomiting. The child is unwilling to be moved ; the bowels are costive ; the symptoms are worse towards evening, and better in the morning. The second stage at length sets in with pain in the head, which is known by the child throwing up his hands to his head and tossing

them about. It is also attended with screaming, impatience of light and noise, and a redness of the corner and inside of the eyelids. The pupil or sight of the eye is contracted, that is, smaller than usual; the pain in the head sometimes extends to the arm and leg of one side. In the third stage the pulse becomes slow and intermitting; the pupil of the eye is dilated, that is, larger than what is natural, and it will not contract on the approach of a lighted candle; the screaming fits are more frequent, with moaning; vomiting will often take place on being raised up; the child becomes stupid, takes no notice of any thing, and frequently dies in this stage. In the fourth stage, if life still continues, the pulse becomes quick again but very feeble; the patient is no longer able to swallow, lies perfectly insensible, and the stools and urine are passed involuntarily. *Subsultus tendinum* or twitching of the tendons, is now to be observed, and very often one eye, or the whole of one side is perfectly paralytic or palsied.

CAUSES.

Those of a scrofulous habit of body are naturally predisposed to it; and hence it is that children sometimes inherit a predisposition to it from their parents. Others, however, are liable to it from falls, blows on the head, or from any cause that produces irritation of the brain. It is generally supposed that the serum or watery fluid is effused on the brain as a consequence of the inflammatory action existing there in first and second stages of the disease.

TREATMENT.

In the first stage, the patient is sometimes cured; in the second, very seldom; in the third, almost never; in the fourth, never. Unless, therefore, it be attended to in the very beginning, medicine is of little avail, and the patient will generally die in about three weeks. The inflammation is to be subdued by bleeding, leeches or cupping to the head and temples, and a blister on the back of the neck. The bowels must be thoroughly cleansed by some active cathartic, as calomel and jalap. Ptyalism, or sore mouth, should then be attempted by giving a grain or two of calomel, once in an hour or two until the gums begin to be sore, and the bowels are to be kept open by giving other physic if necessary. *Digitalis* or foxglove may be given during the fever in the common dose for children (see dispensatory) in order to lessen

the arterial action. After reducing the inflammation, the warm bath and diaphoretic medicines are proper. If the complaint should thus be happily arrested, the strength must be restored by nourishing food, and tonic medicines; taking care to keep the head cool, the bowels in good order, and a seton, or issue, should now be applied and continued for some time to the back of the neck.

INFLAMMATION OF THE TRACHEA, HIVES, RATTLES, OR CROUP.

CROUP is an inflammation of the trachea or lower part of the windpipe, and is mostly prevalent among children. They are mostly liable to it between the first and third year of life, though sometimes it is met with later.

SYMPTOMS.

Inflammatory croup is often preceded by the symptoms of a common catarrh, or cold; but some times it comes on without any previous indisposition. The child is attacked with fever and a very singular cough. It is easily distinguished by that crowing or croacking noise which in this disease always accompanies the act of coughing. The pulse is hard and quick; the child is restless and uneasy; and yet he will frequently be seen taking food and running about while the disease is making rapid progress. The cough and wheezing steadily continue to increase, the breathing becomes more difficult, and if left to itself, the patient will die from suffocation within the short time of three or four days. To give an idea of the danger of this complaint, it is proper to remark that if nothing be done to arrest it within the first twelve hours, it is generally beyond the reach of medicine.

CAUSES.

Cold, and exposure to a damp atmosphere, are most commonly the exciting causes: but those who have once had an attack of the croup are more liable to have it again than those who have never had it; and in such constitutions a common cold will often be attended by croupy symptoms until the thirteenth or fourteenth year of life. In its most malignant form this disease is by some considered contagious or catching.

Author and practitioners, however, are not agreed on this point—and who shall decide when doctors disagree.

TREATMENT.

A small bleeding must be immediately resorted to; an emetic should then be given, and the bleeding promptly repeated as often as the symptoms require it. It is generally the case however that one bleeding from the arm is sufficient; and as soon as the emetic has operated, leeches, or a large blister to the throat must not be forgotten. Nausea or sickness at the stomach must be kept up, but not so much as to induce any further vomiting; and for this purpose the solution of emetic tartar in small doses is proper; or ipecac, squills, or seneka snake root (see *disp.* for these articles,) may be used for the same purpose; and if the emetic does not operate as physic, the bowels are then to be moved by a dose of some gentle carthartic. The tincture or decoction of digitalis (fox-glove) in small doses once in an hour or two, has a great effect in lessening the force of the blood in the arteries. Calomel in very large doses is said to perform wonders. Dr. Ewell speaks of it in the most exalted terms, and I trust I shall need no apology for introducing the testimony of his own words:—

“The most speedy and efficacious of all remedies, in this alarming disease, which has come under my notice is calomel in very large doses. For this valuable remedy, I acknowledge myself indebted to my excellent and very learned friend, Professor Davidge of Baltimore. From him I have been emboldened to use it in desperate cases, in doses from thirty to sixty grains, to children. On my own daughter, only four years old, and apparently in the very act of suffocation, I used it in the dose of at least sixty grains. The cure was almost instantaneous. Among other instances of cure as suprising, was one in the infant of my amiable friend, Mrs. Chalmers, lady of the Rev. Mr. Chalmers, of Washington. The dose was forty grains. The cure was so immediate, that the joyed parent insisted I would instruct her in the remedy, for fear, on the next attack, I might not be in the way to prescribe. On learning I had given her infant, not more than between three and four years old, forty grains of calomel, she was excessively frightened, and exclaimed, “you have killed my child!” and indeed she would hardly be persuaded for some time, though her eyes told her the

contrary, that I had not *killed her child*. So powerful is the effect of this medicine, that it suddenly removes the disease without having recourse to other means. It acts on the stomach, bowels and skin. In cases not very alarming, I have given calomel in smaller doses, conjoined with ipecacuanha, with good effect." When the disease is removed, tonic or strengthening medicines are proper to be given, such as quinine, peruvian bark, columbo, gentian, &c. (see dispensatory.) There is another species of croup of a *chronic* or lingering nature, which is not attended with fever, and children are sometimes troubled with it for years, and then outgrow it. In the beginning, the warm bath may be used, followed by a glyster, or a dose of gentle physic; and if this does not have the desired effect, an emetic should then be given, and after its operation, a dose of laudanum. To prevent its return, the general system ought to be strengthened by the cold bath, change of air, a flannel shirt, and gentle exercise.

BOTANIC PRACTICE OF MEDICINE.

As the *symptoms* and *causes* of every disease are described in part I., it is therefore unnecessary to repeat them in this place, for you can turn to them at once by referring to the index.

All the medicines mentioned here, and their proper doses, may be found in the dispensatory of American botanic remedies.

AGUE AND FEVER.

In this complaint the stomach and bowels are generally out of order, therefore, when the cold fit comes on, or before, drink freely of warm boneset tea, made strong, until it produces puking, and operates downwards. Or a dose of blood-root, or lobelia, or mandrake physic,* or castor oil mixed with rhubarb or jalap root, may be taken for the same purpose. After this, take a dose of powdered jenson root, every

* Mandrake roots, 17 parts; dwarf elder roots, one part; boil down and make common sized pills; dose, from two to four.

morning before eating, and during the day take the dogwood bark, (*cornus Florida*), in its proper dose, or any other strengthening remedy mentioned in the dispensatory. If you should find the fits coming on again, discontinue what you are taking until it is all over, and as soon as the cold stage begins to lay its icy hands upon you, just put your feet and legs into water as hot as you can bear it, and drink down cold water until you begin to puke with a vengeance, which will be in a very short time; then go to bed and sweat as much as you please, and recommence taking the dogwood.

An Indian cure for the ague, is to put three hens eggs into a pint of vinegar, and after the shell is dissolved, the eggs are to be taken out whole, and half a gill of this vinegar is a dose, three times a day.

Another cure, is to mix equal parts of pulverized cinnamon, rhubarb, sulphur, and cream of tartar. A tea-spoonful of this, mixed with molasses, should be taken twice a day. If the fits are still obstinate, then, a syrup made of snake root, ginseng, wormwood, colts foot, cahosh root, tansy and hysop, adding spirits and molasses, is to be taken before the cold fit; and another syrup of coolwort, maiden-hair, chicken-grass, and bull-rush, is to be taken after it.

BILIOUS, OR REMITTANT FEVER,

Is of the same nature (see page 16,) as the ague and fever, but as the remission between the fits is so short, there is not so good a chance to strengthen up the system, for it will not do to give tonics when the fever is on. Therefore, you must try to make the remissions longer, and so turn it into the ague and fever; and in order to do this, if the stomach and bowels have been well cleansed by a puke and physic, give a decoction of pleurisy root, as directed in the dispensatory, and also small doses of lobelia to sicken the stomach a little; this will produce a copious perspiration or sweat, and you may then take tonics to strengthen the system, the same as for ague and fever. And during the fever, one fourth of a tea-spoonful of pulverized mandrake and blood root may be swallowed every three or four hours, or less if it pukes; and and some gentle physic ought to be taken as often as once in two or three days. But the best way of treating this, or any other fever, is to throw it off in the very beginning by taking

a smart dose of mandrake physic, and then a sweat, and afterwards something to strengthen the system. You may take a sweat by using the pleurisy root, or by bathing the whole body in warm water, in which hemlock boughs have been boiled ; or by sitting over the steam of the same, drinking warm peppermint or pennyroyal tea, at the same time ; or, if not able to sit up, beech blocks boiled in the same may be put to the patient in bed, and some kind of drafts applied to his feet.

YELLOW FEVER.

THE nature of this fever is very much the same as bilious remittent fever, and it differs from it only in being much more violent. And after all that is said about it, the same treatment is proper.

INFLAMMATORY FEVER.

THIS is to be treated in the same way for the purpose of throwing off the fever ; but the patient is more like to require bleeding and blistering, in order to prevent the inflammation from settling on the brain, or other part of the body ; for in this complaint, (as you will see by the symptoms, page 25,) the fever runs high, and is very dangerous.

SIMPLE CONTINUED FEVER.

THERE is nothing about this, in the commencement, that is different from any of the above mentioned fevers ; neither can any physician determine at that time, whether it will be the ague, the bilious, the yellow, the inflammatory, or the simple continued fever. Endeavor to throw it off as you would the ague, or the bilious fever, and afterwards, if you do not succeed in throwing it off suddenly, give cooling drinks and nauseating doses of lobelia, blood root, or boneset, when the fever is on, with drafts to the feet, and gentle doses of physic ; and when the fever is off, give tonics ; and if he is like to sink from weakness, give wine or brandy until he recovers.

NERVOUS, PUTRID, OR TYPHUS FEVER.

ENDEAVOR to throw it off by giving an emetic of boneset tea, with a tea-spoonful of ipecac ; and physic, if necessary, with a dose of rhubarb or castor oil. But be very careful not to weaken the system much, for a man is more likely to die from weakness in this fever than in any other. After the physic has operated, give a table-spoonful of yeast every hour or two, and persevere in the use of it, for this is a noble medicine in typhus fever. As soon as the fever begins to abate, keep up the strength by giving wine and dogwood bark together.

(The treatment of this fever in part I. chapter 5, is principally with American remedies.)

TYPHUS SYNCOPALIS, AND THE PLAGUE,

ARE of the same nature as common typhus, (see the symptoms, pages 31 and 32.) The principal difference is, that they are both more violent in their symptoms, and more dangerous in their termination.

SMALL POX, MODIFIED SMALL POX, AND CHICKEN POX.

THE treatment of these in part 1st, is principally with American remedies. See the index.

MEASLES.

SEE the treatment at page 40. Instead of giving the "Dover's powders or small doses of antimony," a decoction of pleurisy root may be given, or any other sweating medicine described in the botanic dispensatory, may be used.

SCARLET FEVER.

SEE the treatment at page 43. Instead of calomel, let the

“brisk cathartic medicine” be a dose of mandrake physic ; and instead of the “ weak solution of tartrate of antimony,” give small doses of pulverized blood root, once an hour or two, as the stomach can bear it without puking, or a few drops of the tincture of lobelia will answer for the same purpose. In the commencement, when emetics are used, give fifteen or twenty grains of pulverized blood root, with boneset tea, instead of tartar emetic, and lessen the dose for children. When it is “found necessary to support the patient,” a decoction of dogwood bark may be used, and the quinine can be omitted. In the dropsy attending this fever, a decoction of burdock and dwarf elder roots may be used instead of squills and digitalis, if it should be more convenient.

CONSUMPTION.

For the cough. Take any quantity of pulverised crawley root, and add to it one fourth as much of skunk cabbage root, one fourth of wild turnip, and one fourth of elecampane. Put the whole into a tea-cup, and mix it up with West India molasses. Take a large tea-spoonful of this three or four times a day ; and between the times of taking the above mixture, if you find that a coughing spell is coming on, take a little of the pulverized leaf of lobelia on the point of your penknife, and drop it into a spoonful of water, drink it down, and you will soon be able to raise without coughing.

For the fever. Drink half a tea-cupful of nanny bush tea three or four times a day.

For the pain in the side. Take a heaping tea-spoonful of pulverized jenson root, drop it into half a tea-cupful of boneset tea, stir it round, and drink it down. Do this every morning as soon as you rise, and be out of your bed by the time that the birds wake up. After taking the jenson in this way for a week, discontinue for a few days, and then recommence it again. A glass of lime water may be used occasionally.

For costiveness. Take some water in your mouth, and swallow down two tea-spoonfuls of whole mustard seed twice a day, and you will soon be relieved of that difficulty. As you probably have a good appetite, you may eat whatever you please, provided that you find it agrees with the stomach.

A faithful attention to the directions has cured seated

consumptions, and there is no question but that it may cure many others, that have any stamina of a constitution left, if they will take the trouble to give it a fair trial.

After the cough and pain in the side are well abated, a beer made in the following manner, may be used to advantage, viz : pour six pails of boiling hot water into half a bushel of barley malt, and let it stand six hours, then drain off and add to the water half a bushel of white pine bark, one pound of spignard root, one pound, root and top, of sanicle or black snake root, one pound of jenson root, and one of piunkium, roots and tops. Then boil the whole together until the water is half gone, strain it into a new keg, add one pound of honey, with yeast and emptyings, let it foment, and then bottle it up. A gill of this may be taken four times a day, gradually increasing the dose.

DROPSY.

Two or three pills of the mandrake physic must be administered, and after they have operated, two pounds of the fresh roots of dwarf elder, or half a pound of the dry roots, are to be boiled in three gallons of water down to a quart ; strain out the liquor, and when about blood warm drink the whole of it in the course an hour or two ; and it will carry the water out of the body at no small rate. One pill of the physic is then to be taken every other night for a fortnight, unless the patient should be very weak, and at the end of that time, or before, if necessary, a course of tonic medicine must be adopted to strengthen the system, and give tone to the vessels ; and for this purpose, pulverized dogwood bark in port wine three times a day, a tea-spoonful or more of the bark to a glass of wine, is a noble tonic. To prevent costiveness, take two tea-spoonfuls or more of whole mustard seed night and morning in a little water, or the same quantity of finely powdered charcoal mixed up with cream or molasses. But if a relax should come on, then drink a decoction of either black or red oak bark, or of the blackberry root boiled in milk.

CHOLERA MORBUS.

To stop the puking, burn a new cork to a coal, pulverize

it fine, mix with brandy, and give a tea-spoonful every ten or fifteen minutes. In the mean time a strong decoction of tansy is to be applied warm to the bowels, emmollient clysters of starch, flaxseed, or slippery elm tea may be used; but as soon as the stomach is settled, a smart dose of physic should be taken; if you should puke it up, then settle the stomach again with burnt cork and brandy, or weak chicken broth, or wet a lump of sugar with a few drops of cinnamon oil, mash and rub it well to cut the oil, then add a little brandy and water; drink a tea-spoonful of this, and try the physic again: After getting the physic down, take another tea-spoonful of the cork, or cinnamon mixture, in order to keep it down. After the operation of the physic, if the purging should still continue, drink a tea made of the common blackberry root, or of red or black oak bark.

DYSENTERY.

TAKE a handful of pie-plant roots, make a decoction, and drink half a tea-cupful every hour until it operates as physic. This will generally be sufficient, but if not, then take two handfuls of blackberry roots, boil them in three pints of milk or water down to a quart, and give a tea-cupful every two or three hours.

BILIOUS COLIC.

GIVE a spoonful of sweet oil every hour, and in the mean time take the fresh green leaves of tobacco, stew them in vinegar, and apply them to the bowels. It will probably occasion nausea at the stomach, vomiting and great depression of strength; the patient, however, will be relieved, and the leaves may then be taken off; and if the action of the tobacco leaves externally, and sweet oil internally, does not produce an evacuation of the bowels, a dose of castor oil and rhubarb should be given, and after its operation, let a jelly of arrow root be used for diet. (See this article in the dispensatory.)

VENEREAL DISEASE.

TAKE one pound of the bark of the root of sumach, or shoe-

make as it is generally called, one pound of the inner bark of pine, and one of swamp elm, boil them in one gallon of water down to three quarts, and drink half a pint three times a day ; and if costiveness be produced, a dose of salts may be taken occasionally. If there be ulcers, they are to be washed with the decoction made warm, the patient at the same time must abstain from all kinds of stimulants, and the good effects will appear in a very short time. This remedy is one of the best mercies to offending man, and instances can be produced of the effects of it, which would stagger credulity. Mercury and nitric acid have failed, but this has never been known to fail when properly applied.

PILES.

MAKE an ointment of strammonium leaves, or of celandine, and apply to the part morning and evening, (see dispensatory.) If they are blind piles, a little linen lint, smeared with the ointment, may be put up, and drink tar water twice a day, and the essence of fir every night on going to bed.

SPITTING BLOOD, NOSE BLEED, AND BLEEDING FROM WOUNDS.

EITHER of these complaints or accidents may be cured at once with the plant called *crane's bill*. It is an Indian remedy, and was obtained of the Indians by Mr. David Cooper, of Woodbury.

For spitting blood, make an infusion of the plant in water, and by drinking of it frequently, it will stop in a very few minutes. In all other cases of external wounds or bleeding, wash the roots, pound them in a mortar, and apply to the part immediately. It acts like a charm, and ought to be transplanted into every garden, that it may be at hand when wanted. It is excellent for checking immoderate courses, for curing whites, gleet, and obstinate diarrhœa. A teaspoonful of the powdered root may be taken three or four times a day, or a decoction of it in milk, may be used as a common drink.

RHEUMATISM.

TAKE the ripe berries of skoke or pokeweed, and fill a jug with them ; then pour on them as much spirits as the jug will hold. When the strength of the berries is extracted it is fit for use. The liquor is called pokeweed bounce ; a wine-glassful three times a day is the proper dose.

JAUNDICE.

GIVE a thorough dose of mandrake physic. Then take jenson root, prickly ash bark, sarsaparilla and burdock roots, horse radish, and red cherry bark, make a decoction by boiling them together, strain off the liquor, add an equal quantity of rum, or enough to keep it from souring, and take a wine-glassful three times a day, an hour before eating. In the mean time the eighth part of a tea-spoonful, or less if it pukes, of pulverized blood root, should be taken night and morning for a week ; discontinue a few days, and then commence taking it again, and so continue until cured.

WORMS.

TAKE the top of the herb called wormwood, dry and pulverize it, then give a little of the powder, say one eighth of tea-spoonful, mixed up with molasses, and in one hour afterwards give a dose of mandrake physic. Or, make a tea of the bark of the pride of China, and take as much of it during the day as the child can bear without vomiting or purging, and the next morning give a dose of oil, or senna, or mandrake physic. Or, give one or two tea-spoonfuls of oak of Jerusalem seeds in molasses or honey, twice a day, and continue it for several days ; then give some kind of physic.

KING'S EVIL.

TAKE the root and branch of the plant called *king's evil weed*, make a poultice of it by pounding it in a mortar, and

then apply it to the swelling. If it be an open sore, make a salve by steeping the plant in a mixture of sweet oil and mutton tallow, strain it, and if necessary to make it harder, add beeswax and rosin. Wash the sore with a decoction of the plant, and apply the salve.

SUPPRESSION AND DIFFICULTY OF URINE.

WHEN it is caused by *blisters*, or *cantharides* taken internally, give a glyster of slippery elm tea, and make a strong decoction of pumpkin seed in hot water, and drink of it as much as you can, the more the better. Or, barley water, flax-seed tea, or a decoction of marsh-mallows, or of parsley roots, or of water-melon seeds, will answer.

When it is caused by the *gravel* or *stone* in the bladder, (which is known by pain in the loins, sickness at the stomach, and bloody urine,) then make an infusion of wild carrot seed, sweetened with honey, and use it for a drink. In the mean time, a glass of onion top juice should be taken every night. Or, let an ounce of wild parsley seed remain in a pint of white wine for twelve days; drink a glass one hour before breakfast, and use agrimony for a common tea. Or, steep a large handful of *gravel weed* in hot water; one gill is a dose, every half hour, until the gravel begins to come away.

ASTHMA.

MAKE a tincture of lobelia by putting the herb into spirits, and take enough to nauseate the stomach as often as may be necessary. (See *lobelia*, in the dispensatory.)

DIABETES. . .

LET the patient use animal food; keep an issue or blister running opposite the kidneys, and keep the bowels open with rhubarb. At the same time, take pulverized dogwood bark (*carnus florida*,) and bearberry leaves, (*uva ursi*,) of each twenty grains, and half a grain of opium; mix them together for a dose, and use the same three times a day with lime water.

Or, put four ounces of spruce gum into two quarts of brandy, and use a wine-glassful three times a day.

CANCERS.

TAKE the heads of red clover when full grown and boil them in a iron pot of water until the strength is out; then strain and boil down to the consistency of tar. Use half a gill of this and add to it a heaped tea-spoonful of the pulverized seeds of lobelia, and the same quantity of pulverized cayenne pepper. Stir these together, and the plaster is fit for use, which is to be spread larger than the sore, on a piece of soft leather. When the cancer has absorbed one plaster put on another, and so continue till the sore is cured. Once a day, wet the cancer with a decoction of the green leaves of poison hemlock, (*cicuta*,) and in the mean time, make two quarts of syrup of the following articles, viz: red clover heads, bittersweet and yellow dock roots, of each four ounces; red clover roots and carrots, of each six ounces, and sarsaparilla roots, one pound. Drink half a gill three times a day.

ITCH OINTMENT.

TAKE one gallon of alcohol, one pound of gum myrrh pounded fine, and one ounce of cayenne pepper, (the common red pepper will answer.) Put the alcohol into a jug that will hold about two gallons, add the myrrh and pepper to it, and shake or stir them well together. Then put a kettle of water over the fire and set the jug upright in it, with the cork out. In this situation let the water boil, and the alcohol, about half an hour. Then take the jug out, and when it becomes cool and settled, strain it off from the myrrh and pepper, and add to the alcohol as much spirits of turpentine as there is now of the alcohol after being boiled. Mix it well by shaking, and it is ready for use, to be put on night and morning, always shaking the phial before using it. This cures when nothing else will, and there is no danger of taking cold.

FEVER SORE.

WASH and syringe the sore in a decoction of shrub maple. Then make a strong decoction of blue flag root and shrub maple together; strain, and simmer down to a salve, adding beeswax and honey, and mix it well before it gets cold. Apply this to the sore, and drink freely of tar-water.

TOOTH ACHE.

HOLD a little of the tincture of lobelia in the mouth, or chew one leaf of the same. Or put a piece of white vitriol into the hollow tooth.

WHITE SWELLING.

DISSOLVE half an ounce of sal ammoniac (hydrochlorate of ammonia,) in a quart of sharp vinegar boiling hot, and bathe the swelling with it, as hot as the patient can bear it, for half an hour. Then with a long bandage, wet with the same, commence winding the part affected from above downwards, as tight as will be convenient to the patient, and keep winding it until you get six or eight inches below the joint, then pin the bandage tight, and bathe or wet it again, and as the swelling decreases, tighten the bandage, and so continue wetting and tightening until the swelling is all reduced. To prevent a return of the swelling, take a phial half full of sweet oil, and fill up the rest of it with liquid hartshorn, put in the cork immediately, and mix by shaking; rub some of it on the part a few times in the day, and drink freely of sulphur or mineral water, in order to cleanse the blood, and strengthen the system.

Note. Sugar of lead, or acetate of lead, is not a safe application to the swelling, for it is frequently absorbed into the system, and produces incurable paralysis or palsy of the limbs.

SALT RHEUM.

ENDEAVOR to persuade your hands to lie still, for they never can be cured unless they do. If there should be much

fever and swelling, take a dose of salts every few days ; and twice a day, use the following ointment, viz : make a strong decoction of the bark of the root of river willow, skunk cabbage, and blue flag roots ; then strain, add a portion of lard to it, and boil down until the water is all evaporated, and when cold, it is ready for use.

BITE OF A MAD DOG.

THE following cure is recommended by Dr. Mead ; and though in the space of thirty years he had used it a thousand times, he never knew it to fail. Take ash-colored ground liverwort, cleaned, dried, and powdered, half an ounce ; of black pepper powdered, a quarter of an ounce. Mix these well together, and divide the powder into four doses ; one of which must be taken every morning fasting, for four mornings successively, in half an English pint of cow's milk warm. After these four doses are taken, the patient must go into the cold bath or a cold spring or river, every morning fasting, for a month ; he must be dipped all over, but not stay in (with his head above water) longer than half a minute, if the water be very cold. After this he must go in three times a week for a fortnight longer. The person must be bled before he begins to use the medicine.

In East Indian the following cure is said to be infallible : Take native and factitious cinnabar, of each twenty four grains, musk sixteen grains. Let these be made into a fine powder, and taken in a glass of arrack or brandy. When a person is bit perhaps the safer way will be instantly to cord the limb above the wound, and cut out the flesh of the bitten part without waiting a moment. Then put on salt and vinegar ; afterwards dress with red precipitate ointment ; and immediately commence taking Dr. Mead's remedy. Or take every 2 hours a table spoonful of pulverized red chickweed. This is reported, by a committee of the legislature of Pennsylvania, to be a certain cure.

BITE OF THE RATTLESNAKE.

INSTANTLY suck the poison out of the wound with the mouth, or cut it out, or both ; then pound tobacco and honey

together so as to make a poultice, which apply to the wound, and change it every two hours. Or a poultice made of quick lime, oil and honey, may be applied—Or the fresh juice of plantain.

Note. Let the lips be greased with sweet oil, and then if there be no chops or wounds on them, there is no danger in sucking the pioson out, for the Indians always do it.

Note. A wine glassful of the juice of the plant called squirrelear has cured those who were so far gone as to be incapable of speaking.

STRENGTHENING PLASTER.

TAKE a pound of pitch, which is extracted from pine knots by boiling; melt it in an iron vessel; add rum, and cider emptyings, of each, one gill; boil down slowly until the watery parts are evaporated; then pour it into cold water, and as soon as may be, commence pulling it, and dipping the plaster and your hands likewise, into the spirits, until it becomes white, and begins to stick to your hands; it is then ready for use.

BURNS AND SCALDS.

APPLY sweet oil immediately; then take equal parts of fresh linseed oil and lime water, shake them well together in a bottle, and use it for an ointment two or three times a day.

PILLS FOR THE HEADACHE.

TAKE of poplar bark made fine; bugle, and thoroughwort, equal parts; and put in half as much wormwood as there is of thoroughwort. Pour boiling water to these in an earthen vessel or iron kettle. Boil them till the strength is out, then strain off the tea from the herbs, and boil it down to nearly the thickness of molasses. To a pint of this, add one gill of molasses, and eight ounces of rhubarb, pounded fine and sifted through a fine sive. Next add one ounce of cayenne pepper, made fine and sifted; one ounce of ginger, one ounce slippery elm bark made fine and sifted; and one ounce of golden

seal, or bitter root. If the above articles do not make it thick enough to work into pills, add as much wheat flour as may be necessary. These pills should be taken in the morning before breakfast, from five to nine every other morning. They cause an easy and useful operation, from eight to twenty four hours after they are taken. They are remarkable good in cases of costiveness, indigestion, cold stomach, headache, and dizziness. They are good in various kinds of female complaints, and may be taken with safety in all situations in which men or women may be in.

VEGETABLE CORDIALS.

When a person is troubled with a relax in the bowels, and wishes to take some kind of agreeable medicine for it, let him make a strong tea of red raspberry leaves, and add, to one quart of this tea, two ounces of peachmeats made fine; half an ounce of gum myrrh pounded fine; four ounces of loaf sugar, and one gill of cogniac brandy. Bottle it, and shake the bottle when you drink. Take a wine glassful two or three times a day.

If a cordial is needed to relieve costiveness, make a strong tea of poplar bark made fine, and thoroughwort, equal parts. Add five ounces loaf sugar, and one gill of gin. When the stomach is cold, add to each junk bottle one or two teaspoonfuls of American cayenne pepper.

SORE MOUTH FROM TAKING MERCURY.

TAKE the inner bark of the root of sumach or shoemake, make a tea and wash or gargle the mouth with it—and take sulphur and cream of tartar, a teaspoonful of each mixed with cream or molasses, two or three times a week.

A SOUR STOMACH,

MAY be cured by taking lime water. It is made in this manner:—First pour a small quantity of boiling water upon half a pound of quick lime, let it slack, and then add two gallons of boiling water; stir it now and then until cold, and

after it settles, pour off the clear liquor and keep it in bottles close stopped. One gill of this with half as much new milk may be taken once or twice a day.

MORTIFICATION.

MAKE a poultice of yeast and pulverized charcoal, and apply to the part; or bathe it in white lie brine; or, put on a poultice made by pounding the inner bark of black alder, (*Alnus nigra*,) and drink a tea of the same.

SORE EYES.

MAKE a decoction of fresh wild turnip or of lobelia, strain through a fine cloth, and use it for a wash. Or dissolve twelve grains of white vitriol, and sixteen of sugar of lead in half a pint of water; or instead of the water, in 3 gills of milk, and use the whey.

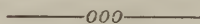
DYSPEPSIA.

IF the stomach and bowels are out of order, they should first be cleaned by a dose of physic. Then make a strong decoction of Sampson snake root, in a teapot or earthen vessel, and take half a teacupful 3 times a day. It has the singular property of strengthening the nervous system without producing any inflammation. In cold phlegmatic habits, a handful of the root may be infused in a bottle of spirits, and a wine glassful, diluted with water, taken 3 times a day. In either method, the effect of it in a few weeks, will be astonishing. Costiveness may be cured and prevented by taking a spoonful of whole mustard seed twice a day.

FLUOR ALBUS, OR WHITES.

EVERY night take one or two grains of the powdered leaves of cicuta, (poison hemlock,) gradually increasing the dose until it either occasions some giddiness, sickness, or trembling, or acts as physic the morning after the dose. Then

discontinue a few days; and in the mean time, while taking the cicuta, and afterwards, boil a handful of comfrey root in milk, and take a teacupful three times a day until the flux becomes less acrid, then make a tea of those roots which are good for *immoderate courses*, such as crane's bill, beth root, and rose willow, (see dispensatory.) For other *female irregularities and weakness*, make use of some of the following articles, viz: Asarum, celandine, bearberry, wild turnip, elecampane, feverfew, wintergreen, spurred rye, blue cohosh, ground pine maiden hair, wormwood, mountain tea, &c. (see these articles in the dispensatory.)



DISPENSATORY

OF

AMERICAN BOTANIC REMEDIES.

It is a common, and true saying, that every country contains the best cures for its own diseases. No other part of the globe can afford stronger proof of the truth of this remark, than this very country of North America, the paradise of freedom, in which we dwell. Instead of sending our ships to foreign climes after costly unnatural medicines, why is it that we do not open our eyes on the vegetable kingdom around us, and accept at our own doors, without money or price, those natural remedies which the God of nature has planted for us, as being more congenial to our constitutions? What, then, is the use in the name of common sense, of importing peruvian bark (for instance) from South America, when the common dogwood (cornus florida,) of our own country, produces the same effect? Or of sending to Europe for Spanish flies, when the American potatoe fly (which may be collected in large quantities,) is far superior, and will draw a blister without producing strangury which the Spanish fly is very apt to do!

Angelica. This is well known. It grows in marshy woods and hedges, flowering in June and July, and is frequently cultivated in our gardens. The root of angelica is

strengthening and aromatic ; it is good for colic arising from wind in the stomach and bowels, and is very beneficial in the ague and fever, and typhus fever. One or two teaspoonfuls of the powdered root is a dose. Or it may be used in a decoction, and dogwood berries or bark may be boiled with it. One gill is a dose 3 or 4 times a day.

Alum root. (*Heuchera Americana.*) The root is a powerful astringent, and much better than Gum Kino, which is brought from Africa. It is used in Hemorrhage from weakness, such as flooding, whites, gleet, &c. It is good for the gravel, and is used as a gargle for sore mouths. It is proper to be put into spirits, or instead of that, the powder or tea may be given. The Indians apply it to wounds, ulcers, and cancers.

Black Alder. (*Alnus Nigra.*) Grows in moist places, and frequently sends up several slender stalks to the height of ten feet ; it bears a red berry. It is tonic and antiseptic, and is therefore good to stop mortification. For this purpose, drink a decoction or tea of the inner bark, and make a poultice of the same and apply externally.

It is sometimes called Virginia Winterberry.

Agrimony. Grows two or three feet high, in hedges, &c. It blossoms in July on long spikes which are yellow, and the seeds of it in the fall of the year are remarkable for sticking to the clothes. Some people call it cuckold. In the form of tea it is a good drink in fevers. The juice of this plant, sweetened with honey, is an excellent medicine in the jaundice, scurvy, and diarrhæa. A wine glassful of the juice, 3 times a day, is a proper dose.

The herb is applied externally to fresh wounds.

Avens root. (*Geum Urbanum.*) Grows a foot high near fences, blossoms in July, white or yellowish, and smells very much like cloves. Two handfuls of the root to a quart of spirits will make a tincture which is an excellent remedy in all cases where tonics are necessary. There is another kind, the *Water Avens*, the blossoms of which are purplish and appear in May, but its properties are much the same as preceding. A decoction of it is good for sore throats. It is also used as a substitute for tea and coffee.

Asarum, or Swamp Asarabacca. Grows in low grounds ; has but two leaves rising from the root, the flowers are pur-

ple and bell shaped, and proceed from between the leaves. It has a nauseous bitter taste. From a half to a table spoonful of the powdered root operate upwards and downwards. Steeped in boiling water, a table spoonful is given every half hour for the whooping-cough. In the dose of a teacupful 3 times a day, it promotes the menses, or *courses*.

Arrow root. (Maranta Arundinacea.) Is cultivated in the United States, and those who do not cultivate it will find that it is for sale at almost every Druggist store. A table spoonful makes a pint of the finest jelly in nature, and is the most nutritious and harmless food that can be for sick persons, especially in bowel complaints.

To make the jelly, add as much cold water to a table-spoonful as will make it into a thin paste ; then pour on boiling water, stirring it at the sametime, till it becomes a clear jelly: nutmeg and sugar, with a little wine or lemon juice, may then be added. But for children, it is better to give it with new milk.

Thorn Apple. (Datura Stramonium.) It is also called James Thorn-weed, French Apple, Stinck-weed, &c. It grows to the height of 2 or 3 feet, flowers in July and August, the apple or pod is large, egg-shaped, and covered with sharp thorns. It has a very disagreeable smell. It is used internally for Apoplexy, Epilepsy, Mania, Chronic, Rheumatism, and difficult menstruation, in the form of *extract*, which is made by exposing the juice of the plant to the heat of the sun, or, boil the plant in water four hours, strain off the liquor, simmer down to a syrup without taking off the scum, then pour it into an earthen vessel, which is now to be kept in a warm oven until it becomes thick. The dose is one or two grains once a day, increasing very gradually. It is a very active medicine, and when taken internally, must be used with the greatest caution. *Externally*, it is used on fresh wounds, bruises, scalds, burns, piles, ulcers, and cancers, in the form of ointment, which is made by simmering slowly the fresh leaves bruised in hog's lard, with about one eighth part of beeswax, for one hour, and then straining it through a coarse cloth.

Celandine. [Chelidonium.] Grows by running brooks, about 2 feet high ; the stalks have larger joints, than are common with other plants, and are very easily broken. It is generally well known. Twenty or thirty drops of the juice,

or half a teaspoonful of the powdered root, in new milk, morning and evening, is a cure for the dropsy, green sickness, and cutaneous eruptions. The juice rubbed on warts, rings, and tetter worms, completely removes them. Made into an ointment or plaster, it is a good application for piles, and effectually cures the Kings evil.

Bearberry. [*Arbutus Uva Ursi.*] Is a low ever-green shrub, also called Whortleberry, and wild cranberry. It relieves the stone, gravel, gonorrhœa, the courses, and also catarrhs and consumptions. Make a tea of the leaves, a handful to a pint of water, and take half a pint two or three times a day.

Five fingers, or Cinquefoil. (*Potentilla Reptans.*) Creeps on the ground with long slender tendrils like strawberries. The leaves are of five parts, with indented edges; the flowers are yellow; and the root has a dark brown color, long and fibrous. It is a very good tonic and astringent. It relieves urinary complaints, fluxes, sexual weakness, ague, and epilepsy. It is sometimes used instead of tea.

Beech Drops. (*Orobanche Virginiana.*) Cancer-root, or broom-rape. It grows under beech trees six or eight inches high, brittle, of a brown color, but no leaves; the root bulbous. It is disagreeably bitter, tonic and astringent. The fresh bruised root externally applied, is celebrated for curing the cancer, ulcers, and St. Anthony's fire. Internally, it is good for convulsions, and after physic has been taken, for dysentary and diarrhœa.

Crawly, or Fever root. Is generally found in the neighborhood of beech drops. It has no leaves; comes up with a single stalk about a foot high, with numerous pods around it that hang downwards, containing, when ripe, an extremely fine seed. The appearance of the root is a curiosity; it is brittle, not so large as a quill, and appears in strata or layers, like hands and fingers on the top of each other, forming a bunch or cluster. The powdered root mixed with molasses, adding a little skunk cabbage and wild turnip root, will cure a cough when nothing else will do it. After mixing up a teacupful, take a teaspoonful 3 or 4 times a day.

Comfrey. (*Consolida.*) Boiled in milk, is excellent in the dysentary, bowel complaints, immoderate courses, and fluor albus. It is beneficial in the clap, and in all other cases

attended with burning heat in making water. A poultice of the pounded root is good for wounds and inflammatory swellings.

Blood root. (*Sanguinaria Canadensis*.) It is also called *red root*, *puccoon*, *indian paint*, *turmeric*, and is generally well known. The powdered root, from 20 to 30 grains, is a powerful emetic. In smaller doses, for ulcerous sore throats, croup, and hives, it is equal to the seneca snake root; and one or two grains every 2 or 3 hours is an excellent diaphoretic in colds, pleurises, &c.

Wild turnip, [*Arum Tryphyllum*,] *Indian turnip*, *March turnip*, *Dragon root*, *Wake robin*, or *Cuckoopaint*. By some of these names it is well known to every one. Its virtues are destroyed by drying, and by too much pounding. To use it as medicine, it should be scraped, and mixed with something oily, sweet, or mucilaginous. It is useful to old people, in cases of asthma, coughs, &c. It is good for women who are not regular, and a decoction of the root is used for eye water.

Dandelion. [*Leontodon Taraxacum*.] A decoction of dandelions will correct an unhealthy state of the stomach and liver, and procure an appetite. ✓

It is diuretic, and very beneficial in the jaundice.

Blackberry. The berry when ripe is known to be pleasant and wholesome, and two handfuls of the roots in 3 pints of milk or water boiled down to a quart, in the dose of a teacupful every 2 or 3 hours, has often cured diarrhæa and dysentery, when the apothecary's medicine had failed.

Elecampane. [*Inula Helenium*.] In the form of strong tea made by boiling it is good for hoarseness, coughs, stoppage of urine, or of the courses; it is used for spitting blood, to destroy worms, and to fasten loose teeth.

Fever-few, *Feather-few.* [*Pyrethrum Parthenum*.] Is an aromatic tonic. A decoction of the herb, in hysterics, and other female complaints, may be used to advantage. ✓

Wintergreen. [*Gaultheria Procumbens*.] *Mountain-tea*, *deerberry*, *partridgeberry*, *grouseberry*, *teaberry*, *ground-holly*, *ground-ivy*, *spiceberry*, are different names for the same thing. It is useful in spasmodic asthma, in urinary, and in female weaknesses. It relieves cramp from wind in

the stomach, and the juice boiled with sweet oil, wax, and turpentine, makes a salve, which is used to heal wounds.

Indian Tobacco. (*Lobelia Inflata.*) Is generally well known. It rises up one or two feet with branched stems, and the flowers, of a pale blue color, appear in July and August. The capsules or pods, are inflated, and filled with small seeds. It is a very powerful emetic, and must be used with caution. One fourth of a tea-spoonful of the powdered leaves generally act as a puke and physic. A little on the point of a penknife dropped into a spoonful of water and swallowed will relieve the asthma, and other coughs. The tincture of the leaves in spirits may be taken for the same purpose, in the dose of a few drops, increasing to a tea-spoonful or more, according to the effects it produces. The following quotation is from the Rev. Dr. M. Cutler, (see Coxe's dispensatory, page 400,) "I had a tincture made of the fresh plant, (Indian tobacco,) and took care to have the spirit fully saturated, which, I think, is important. In a paroxysm (of the asthma) which perhaps, was as severe as I ever experienced, the difficulty of breathing extreme, and after it had continued for a considerable time, I took a table-spoonful. In three or four minutes my breathing was as free as it ever was, but I felt no nausea at the stomach. In ten minutes I took another spoonful, which occasioned sickness. After ten minutes I took the third, which produced sensible effects upon the coats of the stomach, and a very little moderate puking, and a kind of prickly sensation through the whole system, even to the extremities of the fingers and toes. The urinary passage was perceptibly affected by producing a smarting sensation in passing urine, which was probably provoked by stimulus upon the bladder. But all these sensations very soon subsided, and a vigor seemed to be restored to the constitution, which I had not experienced for years." It is generally, however, very dangerous to take as much of it at once as Dr. Cutler did, and he afterwards says himself, that "some patients have been severely puked with only a tea-spoonful."

Burdock. (*Arctium Lappa.*) Operates gently on the bowels, sweetens the blood, promotes sweat and urine, and is used in rheumatic scorbutic, and venereal diseases. Dose, of the juice, a wine-glassful; of the decoction, half a pint, three times a day.

Thoroughwort, [*Eupatorium Perfoliatum*,] *boneset*, *crosswort*, *thoroughstem*, or *Indian sage*, is a plant so generally known as to need no description. A wine-glassful every two hours, of the warm decoction, is beneficial in fevers by exciting a copious perspiration. In larger doses it proves emetic, and in this way it is an excellent remedy for the ague, to be given when the fit is coming on. When taken cold, in small doses, it is very strengthening to the stomach, and the flowers, especially, are as good a tonic bitter as camomile flowers.

Queen of the meadow, (*eupatorium purpureum*.) Is also called *trumpet weed*, *gravel weed*. It grows in hedges, and on the sides of meadows, about four feet high; the stalk is reddish; the flowers is purple; the leaves are long, spear shaped, and opposite each other. A large handful of the roots boiled in three pints of water down to a quart, and given in doses of a tea-cupful every two hours, is an excellent remedy in the gravel, bloody urine, and suppressions of urine; it strengthens the urinary organs, and carries off the water in dropsy.

Pleurisy root, (*Asclepias decumbens*.) *White root*, *flux root*, *wind root*, *butterfly weed*, *harvest flower*, *decumbent*, *swallow wort*. It is a beautiful plant, growing two or three feet high under fences, and on upland pastures.—The flowers are of a bright orange color, and appear in July and August. These are succeeded by long slender pods with a delicate kind of silk attached to them. The root is spindle or carrot shaped, of a light brownish color outside, and white within. No medicine is better than this in producing general and plentiful perspiration without heating the body, and from this it derives its well merited fame in curing pleurisy, inflammation of the lungs, liver and dysentery; but in these acute diseases, the stomach and bowels should first be cleansed by a smart dose of physic, or emetic. A handful of the root is then to be steeped in a quart of boiling water, and a tea-cupful given every two or three hours.

Sweet flag, (*Acorus calamus*.) *Myrtle flag*, *sweet calamus*, *sweet myrtle grass*. The root may be grated into water, and given to children for flatulent colics, when there is no fever. It may also be used as an ingredient with dogwood, cherry bark, &c. to prevent the ague in low marshy situations.

Broad leaved laurel, [*Kalmia Latifolia*.] Grows seven or eight feet high, in swamps and moist rocky pastures. The blossoms are white, and tinged with red. An ointment made by simmering the leaves in lard is good for the scald head, obstinate sores, and has often cured the itch. There is another species, called narrow leave or dwarf laurel. Both kinds are poisonous.

Cicuta, or poison hemlock, [*Conium Maculatum*.]—Grows from three to six feet high, in moist and shady places, resembling parsly, but the root resembles the carrot. The stalk is round, smooth, hollow, and marked with reddish or brown spots. The under side of the leaf is whitish green, the upper side dark green. The flowers are white, heart shaped, and consist of five leaves. The seed is greenish, flat on one side, convex on the other, and the convex side is marked with five furrows. The smell of the plant resembles the urine of a cat. The *furrows* on the convex side of the seed, the *spots* on the stalk, and the peculiar *smell* of the plant, taken together, will distinguish it from all other plants that resemble it. It is of a narcotic nature, and when taken in an over dose, is a deadly poison. It is used in fluxes, epilepsy, chronic rheumatism, jaundice, venereal complaints, cutaneous affections, rickets, swelled testicles, cancer, scrofulous affections, &c. The dose is from one to three grains a day of the leaves, gradually increasing, until it produces giddiness. The leaves should be collected in June, dried quickly before a fire on tin plates, and kept in well stopped phials, secluded from the light.

Jenson, gention, gension, or American gentian. It grows on the side of roads and in waste pastures, two or three feet high. The stem is strong and erect, and the leaves are spear-shaped, somewhat like common milkweed. But the leaf surrounds the stalk like thoroughwort, and at the junction of the leaf with the stalk, on the upper side, yellow flowers appear which terminate in bitter berries, containing the seed. It is better than imported gentian; not only is it a tonic, but it corrects unhealthy secretions, and produces that healing effect on the lungs and liver which no other medicine can do.

Dwarf elder. This plant dies every year, and rises afresh in the spring with a four square, rough prickly stalk, three or four feet high. The flowers are white with a dash of pur-

ple, standing in umbels on the top of the stalk, and terminating in reddish or dark colored berries. The root creeps under the upper crust of the ground, as large as the finger, and springs up again in different places. It colors the hair black; is a powerful diuretic, and has acquired great fame in curing the dropsy. It is used in decoction.

Sampson snake root. Grows from one to two or three feet high; the leaves are dark green, and very smooth on the under side. It blossoms about the last of August or first of September, bearing circular, pale blue flowers, on the top of the stalk. The roots are fibrous, of an agreeable taste, running near the surface, from which in the fall red sprouts are found shooting up to form other stalks. It is used in debility of the nervous system, a wine-glassful of the tincture, or more of the decoction, three times a day.

Dogwood, or boxwood, [Cornus Florida.] Grows fifteen or twenty feet high, bearing large white flowers, and is well known. It is a powerful tonic, and is equal to the peruvian bark. The bark is used for the ague, either in substance, [pulverized,] tincture, or decoction; and the Indians make use of the flowers for the same purpose.

Rose willow. Grows on the banks of brooks or rivers, or borders of meadows, about the size of an apple tree, with a bunch in the top resembling a bunch of roses; gray colored bark outside, red within. A large handful of the bark boiled in three pints of water down to a quart, is used for the gleet, whites, immoderate flowing of the menses, and cutaneous eruptions.

Oak, [Quercus.] Either black or red oak bark is tonic, astringent, and powerfully antiseptic. It is good in all cases where peruvian bark is good, and may be used in decoction internally and externally.

Mallows. Grows in almost every door yard. There are two kinds, but the properties of both are the same. It is mucilaginous, and useful in dysenteries, gravel, stranguary, and scalding of urine.

Mustard. The pulverized seeds are a diffusible stimulus. When taken whole, in the dose of a table-spoonful or more, they produce a gentle evacuation, without weakening the stomach and bowels.

Tobacco, [*Nicotiana Tobacum*,] is emetic, cathartic, sudorific, diuretic, expectorant, narcotic, and antispasmodic. Two or three spoonful of tobacco infusion mixed with half a pint of gruel, and used as injection, will afford relief in violent colics when the bowels cannot be moved by any other physic.

Fox glove, [*Digitalis Purpurea*.] Is but little known except by physicians, and yet it grows very common among us. It rises to the height of two or more feet, and its leaves are large, egg-shaped, notched like a saw, and covered with hairs. The blossoms are of a beautiful purple color, hanging downwards in a row along one side, which are compared with the fingers of a glove, and in the inside are elegantly mottled with spots like little eyes. When taken in large doses, digitalis produces vomiting, purging, dimness of sight, vertigo, delirium, hiccough, convulsions, collapse, and death. Cordials and stimulants are the best antidotes. As a medicine, it diminishes the frequency of the pulse, lessens the irritability of the system, increases the discharge by urine, and the action of absorbents. In small doses, therefore, it is good for inflammatory complaints. Externally, it has been applied to scrofulous tumors. The powdered leaf may be given internally, one grain twice a day, gradually increasing until it produces some effect, and then stop. Or a decoction may be used about as strong as common tea, in the dose of a tea-spoonful every two or three hours. It is cultivated in some of our gardens.

Camomile. A warm decoction of the flowers in large quantities will act as emetic; in small doses, taken cold, it is an excellent tonic to strengthen the stomach.

Deadly nightshade, [*Atropa Belladonna*.] Grows two or three feet high among rubbish, and uncultivated places. The berries are very plump and round, first green, then changing to red, and when ripe, of a shining black. This poisonous plant has performed great cures in palsy, epilepsy, jaundice, dropsy, and cancer. A half a grain of the powdered root or leaves, is sufficient to begin with. Or, infuse twenty grains in a pint of boiling water; strain it when cool, and one or two table-spoonfuls once a day is a dose. But if any unusual symptoms take place, then stop for some days, and afterwards try it again in smaller doses. The leaves are applied externally to the cancerous tumors and ulcers.

Bittersweet. Grows in hedges, and climbs upon other bushes with winding woody stalks. The flowers are in clusters of a blue purple color, appearing in June and July, and always turning against the sun. The berries are red. It operates by sweat, urine, and stool, and is good in acute rheumatism, jaundice, scurvy, obstructions of the menses, and cutaneous disorders. A tea-cupful of the tea may be taken twice a day. Or steep four ounces of the twigs in a pint of wine; dose, a wine-glassful. The leaves boiled in vinegar, adding a little flaxseed, make a good poultice for hard swellings. An open cancer has been cured by applying the juice and leaves.

Colts Foot, [*Asarum Canadense*.] Is generally known. Boiling injures it. Better put it in spirits. A strong tea, made by steeping, brings out a moisture on the skin, and strengthens the stomach.

Mandrake, or Mayapple, [*Podophyllum Peltatum*,] needs no description. It is an excellent purgative in doses from ten to thirty grains. Or double that quantity infused in a gill of water. Or equal quantities of the mandrake juice and molasses may be mixed, and a table-spoonful taken every hour or two until it operates. The Indians gather the root in autumn when the leaves turn yellow, dry it in the shade, and pulverize it for use.

Pie Plant, Rheubarb, the root, [*Radix Rhei*.] It is generally cultivated in our gardens for the sake of the stalks, which are made into excellent pies; the root, however, is the same kind of rhubarb as that which is imported from Asia. Small doses of rhubarb, from six to ten grains, are astringent and strengthening to the stomach. In larger doses, from a scruple to half a dram, it is first purgative, and then astringent. It is therefore an excellent medicine for diarrhœa and dysentery, because it evacuates any acrid matter that may be offending the bowels, before it acts as an astringent.

American Ipecac, or Indian physic, [*Spiræa Trifoleata*.] Grows about two or three feet high, in low woods and meadows, and is very common in all parts of the country. It is equal to foreign ipecac. Thirty or forty grains of the pulverized root act as emetic; in the dose of five or six grains every two hours, it acts as a sudorific. Or a handful of the

fresh root may be infused in a pint of boiling water, and a small tea-cupful taken every fifteen or twenty minutes until it produces vomiting.

Wormwood, [*Artimisia Absinthium*,] Is also well known. A handful to a quart of boiling water, in the dose of a tea-cupful, or a tea-spoonful of the powdered leaves three times a day, is excellent for worms, hysterics, weakness of the stomach, difficult menstruation, intermittents, jaundice, and dropsy. Externally as a poultice, it is good for bruises, &c.

Tansy, [*Tanacetum Vulgare*.] Relieves hysterical affections. A wine-glassful of tansy juice will throw off an ague fit if taken a few minutes before the attack.

Skunk Cabbage, (*Symplocarpus Fœtida*,) is expectorant, and antispasmodic. The root and seeds are excellent in the asthma, and also for the colic and griping of the bowels.

Nanny Berry Bush. Grows ten or twelve feet high by the side of rivers, lakes or ponds. The berries hang in bunches, about the size of a white bean, containing a kind of stone, and when ripe they are black, of a sweetish taste, and are good to eat. In the hectic fever attending complaints of the lungs and breast, a tea made of the bark is more effectual as a febrifuge than any thing else.

Sanicle, *Black Snake Root*, (*Sanicula Marilandica*,) It is a cordial, stimulating and diaphoretic medicine, and is used in complaints of debility to renovate and strengthen the system. It is generally found in meadows, bears a number of burs on the top, the root is dark colored and has an agreeable strong smell.

Nunk Root, *Piunkum*. It grows by the side of streams, six or eight inches high; the leaf is round, with notches on the edge; the color of the root is purple, the smell agreeable. It is used in consumptive coughs; to stop blood, and to heal fresh wounds.

Poplar, (*Liriodendrum Tulipifera*.) Poplar bark is a very strong, bitter, tonic, and aromatic. It is used in the ague; in dysentery after the bowels are cleansed by physic; and finally in all cases of debility, it has the same effect as peruvian bark.

Slippery elm, (*Ulmus Americana*.) By infusing the bark in water it produces a nourishing jelly, which is capable of

supporting life without any other food. It is beneficial in fevers; and Dr. Grant, who acquired great celebrity in the cure of dysentery, has declared that he is indebted for that reputation to the use of this mucilaginous jelly. Externally applied, it prevents mortification; and as an emollient poultice for swellings, it is better than either bread and milk, or flaxseed.

Sumach, or *Shoemake*, (*Rhus Capallinum*.) It is well known. An infusion or tea of the seeds, sweetened with honey, makes a good gargle for sore throat and for cleansing the mouth in typhus fever. The inner bark of the root in decoction, externally as a wash, or taken internally, is one of the most powerful vegetable antiseptics which our country produces. It is frequently used in hectic, scrofulous, and venereal complaints.

✓ *Pokeweed*, (*Phytolacca Decandra*.) It is very active, and operates as emetic and cathartic. If an ounce of the root be steeped in a pint of wine, two table-spoonfuls will operate well as a puke. In smaller doses it is an excellent remedy for the rheumatism, and it cures the venereal disease without mercury. A decoction of the leaves is used externally for the piles, and an ointment made by simmering a handful of the root or leaves in a pint of lard, adding a little beeswax, is applied to cancers and ulcers.

✓ *Horse radish*. [*Cochlearia Armoracea*.] Is an antiscorbutic and stimulating medicine. It may be taken either in substance or infused in wine, for the scurvy, dropsy, palsy, chronic, rheumatism, &c. An infusion of horse radish in milk is the best cosmetic for the ladies, and steeped in vinegar, it removes freckles from the face.

Pride of China. [*Melia Azedarach*.] This elegant tree has emigrated to the United States, and is now become naturalized by cultivation. It is an anthelmintic or vermifuge. (That is, good to destroy worms.) About four ounces of the bark of fresh root is boiled in 3 pints of water down to a quart, and a half or a whole wine glassful is given to children every 2 or 3 hours until it operates as physic.

American senna. [*Cassia Marilandica*.] Grows well in this country, is very easily raised from the seeds, and ought to be cultivated in every garden. It is well known as a physic for children; a handful of the leaves to a pint of hot

water, and a teacupful or less, every hour or two till it operates.

Oak of Jerusalem, or Wormseed. [*Chenopodium Anthelmenticum.*] This is also a vermifuge or anthelmintic medicine. A table spoonful of the juice of the plant expressed or squeezed out, is a dose. The seed may be boiled in milk, give a wine glassful. Or one or two teaspoonfuls of the seed itself may be mixed with molasses or honey, and given to a child 2 or 3 years old on an empty stomach, twice a day, and continued several days.

King's evil weed. Grows in the woods, some like a plantain, but the leaves are smaller, spotted green and white, and a single stalk runs up from the middle of the plant six or eight inches high, bearing on the top a small round bud. It is considered an infallible cure for king's evil. Make a poultice of the whole plant, and apply it to the swelling, and use a tea of the same for constant drink.

Gravel weed. Grows an dry land where wintergreen is found. The stalk rises not much from the ground, but runs along and takes new root. The leaf is oval, of a pale green, thick and rough, but not hairy, as wide as a spoonbowl but not so long, and bears a small white blossom. It grows in little beds or mats like camomile, with the leaves thick together, almost one an the top of the other. It is injured by boiling. An infusion of the leaves and vines in hot water is said to be an effectual cure for gravel in the kidney, or stone in the bladder. The use of it must be continued for some time.

Wild Parsley. [*Petroselinum.*] Grows in meadows and among rocks near the sea, five or six feet high, with a firm stem, long thick root, strong smell, and acrid taste. It flowers in July and has a kidney shaped seed which is a powerful diuretic. A small handful of the seeds boiled in a quart of water, and sweetened with honey, in doses of a teacupful every hour or two, is a very good remedy in suppression of wind, or gravel complaints.

Yellow Dock. Is very effectual in cleansing the blood of humors. An open cancer has been cured by applying the narrowed leaved dock as a fomentation and poultice, and by drinking each day from a pint to a quart of the decoction.

Sarsaparilla. [Smilax Sarsaparilla.] Has long been used in the treatment of venereal complaints. It is also used in scrofula, rheumatism, and cutaneous disorders, [that is, disorders of the skin.] If used in decoction, a large handful of the root may be boiled away one third in a quart of water. Or two drachms of the powder, or one of the extract, may be given 3 or 4 times a day.

Sassafras. [Laurus Sassafras.] It is an aromatic or pleasant tonic. A tea of the bark or flowers purifies the blood, and the pith of the small twigs in water forms a jelly or mucilage which is good for sore eyes, and with nutmeg and sugar, it makes a palatable diet in the dysentery, &c. Sassafras, prickly-ash, dogwood and American gentian, make as powerful and as pleasant a bitter as the foreign gentian columbo, peruvian bark, cloves and cinnamon that we buy at the druggist store.

Blue Flag. [Iris Pseudacorus.] Grows by the brink of rivers, in swamps, and meadows; blossoms in July, blue flowers, variegated with white, yellow and purple. A teaspoonful of the juice diluted with water is an active cathartic, and the decoction for constant drink, is used in venereal complaints.

River Willow. An ointment to cure the salt rheum is made from the bark of this root, blue flag, and skunk cabbage roots.

Rattlesnake's Plantain. Grows in almost every meadow. The leaf is more notched, and smaller than the common plantain, and the root has a hot peppery taste. A poultice of the fresh pounded leaves is celebrated for curing the bite of a rattlesnake.

Noble Liverwort. Grows three or four inches from the ground with a roundish, three cornered, and dark brown leaf. A decoction of this herb has been highly recommended for curing consumption.

Ladies' slipper. Is well known. A decoction of the root is febrifuge, and a fine regulating medicine in female complaints.

Lungwort. [Lichen.] Is a thin shell or skin resembling the lungs, which grows on the bark of the white oak

tree. A handful to a quart of boiling water may be used as a common drink for consumption and hooping cough.

Tag alder. The bark of the roots boiled in cider is the best thing to cleanse the blood in the spring of the year. Take a teacupful every hour or two until it operates as physic.

Squirrel ear, or edge leaf. It never grows higher than two or three feet; the leaves are transverse and alternate; the edge of the leaf, instead of the surface, is presented to the sun, and its color and shape, although larger, very much resembles the ear of a squirrel.

Beth root. [*Trillium Rhumboidum.*] Grows about a foot high, three oval leaves at the top of the stalk, and one flower of a purple color, bell-shaped, which produces a small berry, containing the seed. The root is brown, bulbous and full of small fibres. It is tonic, astringent, and antiseptic. A teaspoonful of the powdered root three or four times a day, is used in spitting blood, immoderate courses, and bloody urine. A poultice of the root is applied to putrid ulcers, and to stop mortification.

Blue cohosh. [*Caulophyllum Thalictroides.*] Is an excellent remedy in rheumatism, dropsy, and obstruction of the menses or courses. A handful of the root to a quart of boiling water—drink a teacupful 3 or 4 times a day. Or put the same quantity in a quart of spirits, and take a wineglassful 2 or 3 times a day.

Ground Pine. [*Arthetica.*] Grows in stony lands, about six inches high, sends out many small branches, with small narrow grayish leaves, somewhat hairy; flowers of a pale color, growing from the joint of the stalk among the leaves, terminating in small round husks. It is used for the same purposes as blue cohosh. Steep a handful of the leaves and flowers in a pint of wine, and take a wine glassful 2 or 3 times a day.

Maiden hair. [*Asplenium Trichomanes.*] Grows seven or eight inches high, the stalks are small, smooth, and of a dark purple colour, the leaves are very fine, soft, and spotted underneath, and it flowers from May to October. It is a good medicine for irregularities of the female system, and also for disorders of the breast, coughs, hoarseness, &c. Pour a quart of boiling water on a handful of the dry herb, sweeten with honey, and take a teacupful every hour or two.

Butternut tree, or white walnut. [Inglans Cinerea.] For diarrhœa, dysentery, and costiveness, it is about the best physic that grows. The bark of the root should be collected in May or June; after cleaning, cutting, and bruising, should have eight times its weight of water added to it; it should then be boiled to one half, strained through thick cloth, and afterwards evaporated to the consistence of thick honey, at such a distance from the fire that it shall not be burnt in the least. It may then be dried in a warm oven till it will pill; take from three to five pills the size of a pea.

Valerian. [Valeriana Officinalis.] Grows abundantly near the Ohio river, two or three feet high, the leaves are in pairs, large, hairy, and of a dusky green color. The flowers stand in large tufts on the top of the branches, of a pale whitish-red color. The root consists of a number of slender fibres, matted together, and attached to one head; it has a brown color, and strong unpleasant smell. Valerian root has long been recommended by the most learned physicians as a medicine of great use in debilities of the nervous system, especially in hysterics and hypochondriasis. Boiling injures it. The common dose is from a scruple to a drachm in powder.

Spikenard, spignard, or spignet. [Aralia Racemosa.] A pint of the berries to a quart of spirits, in the dose of a wine glassful, is a speedy cure for the gout in the stomach. The root boiled in wine or water relieves the strangury, and pains of the stomach; and a poultice of the fresh root is a fine application to wounds and ulcers.

Potatoe flies. [Lytta Vittata.] They feed on the vine of the sweet potatoe, and also on that of the Irish potatoe; make their appearance the last of July or first of August; are equal to the Spanish flies in raising a blister, and may be collected in great abundance, morning and evening, by shaking them from the leaves into a vessel of hot water, and afterwards drying them in the sun. They are then to be pulverized, and mixed as directed, (see blistering plaster, disp.) Every family ought to collect them.

Peach tree. [Amygdalus Persica.] Both the leaves and flowers are excellent physic, and can easily be gathered by every family. A teaspoonful of a strong infusion with boiling water, sweetened, and taken every hour or two, will operate mildly on the bowels, without griping as senna does.

Grown persons may take from a gill to half a pint once in 2 or 3 hours.

Milkweed. [Vincetoxicum.] It is sometimes called silkweed, and is well known. A decoction of the root, in doses of a gill or more 3 or 4 times a day, has the reputation of being an effectual cure for the dropsy, and beneficial in gravel, scrofula, and rheumatism.

Indigo weed, or wild indigo. [Sophora Tinctoria.] Grows abundantly two or three feet high on the road sides, and in the woods. It is perennial, (lasting the year round,) the leaves are small, ternate, (three leaflets on a leaf stalk,) inversely heart shaped, and sessile, (sitting on the stem.) In July and August the flowers appear on its branches, butterfly-shaped, and yellow or golden colored; the vessels containing the seed are inflated; the root has a dark brown color, woody, rough, and irregular; the taste is similar to that of ipecac., unpleasant and nauseous. A pale blue color is made from the leaves and branches as a substitute for indigo. A decoction of the root in large doses, is a powerful emetic and cathartic, in small doses, as a wine glassful, it is laxative, cooling, and good in fevers. Made into an ointment, it is applied to sore nipples and ulcers of the breast.

Hops. [Humulus Lupulus.] Contain an *aromatic*, an *astringent*, a *tonic*, and a *narcotic* principle. The first three are obtained by infusion (steeping) in water. The second and third are also obtained by decoction, (boiling,) but the first, or aromatic principle, is then destroyed or driven off, and the fourth or narcotic principle, is not obtained by steeping or boiling. As alcohol or spirits extracts all its virtues together, it is better, perhaps, either to take the tincture, from a half to a whole drachm once or twice a day, or the substance itself, in powder, in the dose of three grains. It is given as an anodyne in rheumatism and gout; a pillow of hops is used to procure sleep; and an ointment of the same has relieved the violent pain of cancer when all other applications were ineffectual.

Crane's bill. [Geranium Maculatum.] This valuable plant grows five or six inches high in meadows and woods; has long slender stalks, with seven long narrow leaves at a joint. The root is generally crooked and knotted, blackish on the outside and reddish; has a rough taste, with an aro-

matic flavor. It is a powerful styptic, and has even stopped the bleeding from a wounded artery, by pounding the roots in a little cold water, and applying it to the part. It is also an Indian remedy for the lues venerea, and boiled in milk, it is excellent in the cholera morbus.

Red chickweed, or red pimpernel. [Annagallis Phenicea.] Is cultivated in many gardens, and grows spontaneously near Baltimore. In the dose of table spoonful of the pulverized leaves, it is celebrated for the cure of hydrophobia.

Ergot, smut rye, or spurred rye. [Secale Cornutum.] In lingering labors, *when there is no impediment but weakness*, ergot may be given to bring on effectual pains in the dose of five, ten, or fifteen grains of the powdered spur. Or, boil gently thirty grains of the powder in half a pint of water, and give one third of it every 20 minutes until pains commence, but no longer. Flooding has been checked, and suppression of the courses has also been removed, by the use of it.

Charcoal of wood. [Carbo Ligni.] In fifteen or sixteen cases of obstinate constipation of the bowels, Dr. Daniel of Georgia, administered 3 table spoonfuls of pulverized charcoal every half hour, and in about 17 hours the bowels were freely evacuated. It is slow, but sure. A table spoonful two or three times a day will remove costiveness. In smaller doses, it corrects a bad breath; and prevents putrid belchings of wind from the stomach. After pulverizing, it ought to be heated red hot in a covered vessel, until there is no flame on it, then cool gradually, take off the upper layer of the powder, and bottle up the remainder for use. This makes it pure, but it may be used without the ceremony of burning it over. It is a powerful antiseptic, and is used as a poultice to stop mortification.

American Hellebore. [Veratium Viride.] Has the same effect as the white hellebore (veratum album,) that comes from Germany and Switzerland. It frequently grows with skunk cabbage, is sometimes called *itch-weed*, and is well known.

The whole plant is poisonous. Half a grain of the pulverized bark of the root (increasing daily as the patient can bear it) is beneficial in mania, epilepsy, king's evil, &c. and a decoction of the root, or an ointment of the same, is used

externally to cure the itch, and other cutaneous affections. The decoction is made by boiling a handful of the bruised root in a quart of water to a pint and a half, and then strained. Use it as a wash twice a day. The ointment is made by simmering the root slowly in hog's lard. Mr. J. Moor's preparation of hellebore cures the gout and rheumatism almost infallibly ; and there is no doubt but that the American hellebore may do the same, (see tincture of hellebore.)

Peppermint. [*Mentha Piperita.*] Is a diffusible stimulant, good in flatulent colics, hysterics, and vomiting. In cholera morbus, peppermint steeped in spirits, and the herb applied hot to the stomach and bowels, will stop the puking, so that physic can be kept on the stomach.

Strawberry. [*Fragaria.*] Strawberries are cooling and laxative, beneficial in the scurvy, and a certain prevention of the gravel. Young strawberry leaves, dried in the shade, make excellent tea.

White poppy. [*Papaver Somniferum.*] The milky juice that exudes from the poppy, by drying away in the sun, becomes pure opium. A decoction of the plant, especially of the capsules or heads, boiled down to an extract, has the properties of opium, though it is not so powerful. The opium used in America is imported from Turkey where the poppies are cultivated for that purpose, as they might be in this country. A strong decoction of dried poppy heads, adding half the quantity of sugar or honey, and then simmered slowly for an hour, is an excellent anodyne for coughs, and breast complaints, in the dose of a table spoonful.

Sweet fern. [*Polypodium, or Comptonia Arplenifolia.*] Grows in woods and stony places, flowers from June to October, and is well known. It is a powerful medicine to expel the tape worm, in the dose of a pint a day of the decoction, or one or two teaspoonfuls of the powder ; to be followed on the fifth day by a dose of some kind of physic. It is also good in chronic rheumatism, and a wash of it is considered beneficial in St. Anthony's fire, and other cutaneous affections.

Meadow saffron. [*Colchicum Autumnale.*] Is of a purgative, emetic, diuretic, and anodyne nature. The bulb of the root, and the seeds, are used in gout, rheumatism, asthma, and dropsy. Colchicum root is distinguished by a small pro-

jection like a nail or peg on one side at the bottom part of the bulb, which makes it totally different from every other bulbous root. In July it is to be dug, sliced, and dried for use, (see wine of colchicum.)

Prickly Ash, (*Aralia Spinosa*.) A watery infusion of the inner bark is a good sudorific (sweating) medicine, and removes the pains of chronic rheumatism. The berries, which are sometimes called Indian cloves, are used in the form of tincture (with spirits) for the tooth-ache.

Witch Hazel, (*Hamamelis Virginiana*.) The habits of this well known shrub are very singular ; it blossoms in the fall after its leaves are destroyed by frost, and the fruit, thus exposed to the severity of winter, is not injured at all, and does not ripen until autumn the next year, when it flowers again ; and then, ripe fruit and blossoms will be found on the same tree. The twigs and flowers in decoction are esteemed a valuable tonic, the virtues of which are similar to those of good wine. Externally applied, the bark is sedative, (soothing,) and discutient, (scattering or driving.) A poultice of the inner bark is good for inflamed eyes, and the Indians make use of it to remove painful tumors, and other external inflammations.

In collecting and preserving *vegetables*, it is proper to observe, that *roots* should be gathered before the sap rises in the spring, or after it returns, in autumn, and taken from the driest land where they grow. In washing, let them remain in the water as short a time as possible, or, dry them without washing, and clean with a brush afterwards. Those which lose their virtue by drying, may be kept in dry sand. *Leaves* and *flowers* should be gathered in dry weather, after the dew is off, and while they are in full vigor. They may be tied in small bundles and hung up to dry, but the better way is to dry them quicker, by the gentle heat of a stove, or fire-place. *Seeds* and *fruits* are generally to be gathered when ripe ; *sprouts*, before the buds open ; *stalks*, in autumn, and *barks*, in spring and autumn.

PART III.

DISPENSATORY.

A TABLE OF WEIGHTS AND MEASURES, USED BY APOTHECARIES.

The pound (<i>lb.</i>).....	contains twelve ounces,	<i>oz.</i>
The ounce.....	eight drachms,	<i>dr.</i>
The drachm.....	three scruples,	<i>scr.</i>
The scruple.....	twenty grains,	<i>gr.</i>

By the above signs, the several weights are denoted ;

And the following are the measures or signs by which apothecaries express the quantity of liquids ; employing the measures which are derived from the wine gallon.

The gallon contains.....	eight pints,	<i>pts.</i>
The pint.....	sixteen fluid ounces,	<i>f. oz.</i>
The fluid ounce.....	eight fluid drachms,	<i>f. dr.</i>
The fluid drachm.....	sixty minims, (drops)	<i>m.</i>

The medicines marked thus * will be described in the *dispensatory of American botanic remedies.*

CLASSIFICATION OF MEDICINES.

GENERAL STIMULANTS.

Diffusible.	Narcotics.	Tonics.
Stimulants.	Antispasmodics.	Astringents.

LOCAL STIMULANTS.

Emetics.	Diuretics.	Sialogogues.
Cathartics.	Diaphoretics.	Errhines.
Emmenagogues.	Expectorants.	Epispastics.

CHEMICAL REMEDIES.

Escharotics.	Antacids.	Lithontriptics.	Refrigerents.
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MECHANICAL REMEDIES.

Diluents.	Demulcents.	Emmollients.	Anthelmintics.
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These appear to be all the classes necessary ; therefore all the medicines in use belong properly to one of these classes ; and if there are any substances that it will be of particular to consider together, they will be spoken of separate from any classical arrangement.

NARCOTICS.

NARCOTICS are substances which diminish the actions and powers of the system without occasioning any sensible evacuation. In a moderate dose they increase the force and frequency of the pulse, promotes secretions, give vigor to the body, inducing hilarity or intoxication. After sometime, the pulse not only returns to the natural standard, but becomes more slow and soft, pain and inordinate motion are alleviated ; there is general langor, the mind is placid and inactive, and this state soon terminates in sleep, which is generally followed by temporary debility, sickness, tremors and anxiety. And when a large dose has been given, the consequences are delirium, paralysis, convulsions, coma and death.

Alcohol, spirit of wine, is obtained by submitting vinous or fermented liquor to distillation. It is colorless and lighter than water, its specific gravity to that of water is as 835 to 1000. Alcohol is seldom used in its pure state, except as an application to burns, local inflammations not connected with increased action, it is applied to relieve pains, to bleeding wounds to restrain hæmorrhage, and diluted (spiritous liquors) it is employed as a general stimulant ; and its secondary effects is that of a narcotic, producing beastly stupor, universal tremors, and if long continued, though diluted, produce hypochondriasis, dyspepsia, inflammation of the liver, gout, red face, &c. palsy and death.

ETHER. (SULPHURIC ETHER.)

THIS is obtained by exposing a mixture of sulphuric acid alcohol in equal weights to a heat sufficient to produce ebullition : the ether is the product of the action of the acid on the alcohol : it distils over, and is purified by a second distillation. Sulphuric ether is colorless, highly odorous and pungent, much lighter than alcohol, and soon evaporates in common temperatures. Its operation is in every respect

similar to that of alcohol but quicker and more powerful, but less permanent. It produces cold on evaporation, and is an excellent application to burns, relieves pains when externally applied; it is given in typhus fever as a stimulant, and in other forms of fever to relieve nausea, and from its narcotic properties it is valuable in all cases attended with spasmodic action; it frequently affords sudden relief in asthma and difficult breathing. Its usual dose is a tea-spoonful, (one drachm.)

CAMPHOR. CAMPHORA. LAURUS CAMPHORA.

THIS is not the produce of one vegetable exclusively but is contained in many plants of the aromatic kind, as peppermint, thyme, sage, &c. For commerce it is obtained from a species of the laurel, a native of Japan and Sumatra. The camphor is obtained from every part of the tree by cutting it fine and putting it into a still, and after boiling forty-eight hours the gum is formed upon the straw with which the head of the still was filled; this is impure and undergoes another sublimation with an addition of one twentieth part quick-lime, and forms in concavo, convex cakes upon the surface of the head of the still; the vessels used in this last process are generally glass. It is stimulant and narcotic, its usual dose is from five to ten grains, but it should be given in small and frequently repeated doses. When given in too large dose, opium is the antidote. Camphor is externally applied as an anodyne in rheumatism, muscular pains and as a disientient in bruises. It is dissolved by alcohol, or common spirits, by vinegar, and by the oils, and may be diffused in water by triturating it with sugar, mucilage, or almonds. With opium, it is a useful local application in tooth-ache.

WHITE POPPY. PAPAVER SOMNIFERUM.

THE white poppy is a native of the warmer regions of the world, it also grows in colder climates without any diminution of its powers. The large capsule affords a milky juice, which by exposure to the sun concretes, of a brown color, and is called opium. The juice of the leaves and stalks is narcotic, but inferior in strength to opium. It may be obtained from the poppy of this country of full narcotic power. Opi-

um is usually imported from Syria and India. It is obtained by making a longitudinal incision in the capsule, (when it has nearly attained maturity,) taking care that it does not penetrate into the cavity of the capsule. This is done in the evening, the milky juice exudes, and adheres to the sides of the incision, this is collected in the morning, and permitted to dry in the sun. The best is the Turkey opium, this comes in flat rounded masses, soft and tenacious, of a dark reddish brown color, having a strong odor, and a bitter acrid taste. If hard, brittle, and of a gray color, with black spots and no resinous lustre it is of inferior quality.

Opium is partly dissolved in water, more in alcohol, and completely in a mixture of alcohol and water, (diluted alcohol, common ardent spirits.) Excessive heat impairs the narcotic powers of opium. Vinegar impairs its active qualities although it dissolves it. The process by which *morphine* was first obtained was by digesting eight ounces of opium by gentle heat in successive portions of distilled water, until it become entirely colorless; on evaporating this liquid, an extract is obtained, which is turbid if diffused in water, but transparent by heat or an additional quantity of water. Upon adding a large quantity of ammonia, a greyish substance is precipitated in form of irregular transparent crystals. These crystals are morphine, but not perfectly pure, when pure it is perfectly colorless. To render it perfectly pure it must be repeatedly washed with alcohol until it becomes nearly colorless, it then forms in pure crystalline prisms.

The effects of opium on the system are a powerful narcotic. In small dose, one grain, it acts as a stimulus and raises the action of the pulse, and some degree of exhilaration, and even intoxication and delirium, if the dose has been large enough, this is of short duration and is usually followed by a degree of drowsiness, lassitude, pain if present is less felt, and this diminished, sensibility terminates in sleep; this is followed in those unaccustomed to its use, by slight nausea or headache, costiveness and impaired digestion.

From a large dose these effects are produced in a more marked degree, and if the dose has been very large the consequences are delirium, stupor, flushing of the countenance, slow and stertorous breathing, an oppressed pulse, convulsions and death. The indications which opium are capable of fulfilling are, supporting the actions of the system, allaying pain and irritation, relieving spasmodic action, inducing sleep, and

checking morbidly increased evacuations. It is given both internally and applied externally with equal success in relieving pain, and spasmodic action; and perhaps the place of opium could not be supplied by any other medicine in the world. By the long continued use of opium the digestive organs, and whole system is impaired.

The dose is very various, according to the intention with which it is administered; but the usual dose is from one to three grains, but to relieve pain it often requires to be given in larger doses, repeated every hour. Twenty-five drops of the tincture are equal to a grain.

HENBANE. HYOSCIAMUS. NIGER. (BLACK.)

THE whole of this plant is narcotic. The leaves only are employed, they afford a juice which is inspissated (dried away) and kept in the shops for sale. The leaves also yield their active matter to diluted alcohol: the active principle of this plant is said to be of an alkaline nature. This operates more like opium than any other medicine. In a dose that proves fatal its operation soon terminates in coma with remarkable dilatation of the pupil, enlargement of the sight of the eye, distortion of the countenance, a weak tremulous pulse, and eruption of ptechiæ. Its effects like those of other vegetable poisons, are counteracted by an emetic and drinking vinegar, bleeding, &c. Its dose is from one to two grains of the inspissated juice, and requires to be gradually increased; a dose of the tincture of black henbane is from twenty-five to forty drops.

Deadly Nightshade.

Atropa Belladonna.*

Conium Maculatum.

Cicuta, Hemlock.*

Thorn Apple.

Datura Stramonium.*

Leopards bane. *Arnica Montana*. In large doses they produce vomiting and purging; the flowers are used in substance in dose of five grains for amaurosis, paralysis, convulsive disorders, gout and rheumatism. The root has been used as a substitute for peruvian bark.

VOMICA NUT. NUX VOMICA.

THE kernel of the fruit is powerfully narcotic, it is intensely bitter, has little or no smell, and is so hard that it

cannot be reduced to powder by beating, but has to be filed down. This is frequently given as a poison to dogs and other animals. It occasions anxiety, paralysis of the hinder parts, convulsions and death. This has not been much used, the dose is five grains twice a day in palsy, mania, epilepsy, hysterics, dysentary and intermittent fever.

ANTISPASMODICS.

THE difference say the doctors, in kind of action between narcotics and antispasmodics is not easy to define. The effects they produce are similar, they are capable of exciting the actions of the system, and are often equally powerful in allaying pain. All the difference probably is that a *narcotic* produces sleep and allays pain and irritability at the same time. Whereas, a medicine may allay pain and spasmodic action, and not produce sleep, then it would be antispasmodic.

Musk.	Assafoetida.
Castor.	Galbanum.
Empyreumatic. Animal Oil.	Sagapenum.
Succinic Oil.	Valerian.
Bittumen Petroleum.	Crocus Sativus. (Saffron.)
Carbonas Ammonia.	Cajuput Oil.

Narcotics used as Antispasmodic.

Ether, Camphor, Opium.

Tonics used as Antispasmodic.

Cuprum, Zincum, Hydrargyrus, Cinchona, Musk, Moshus Moschiferus.

The animal which affords musk is a native of the east of Asia. The musk is a peculiar secretion deposited in a small sack, near the navel of the male. It is generally brought in its natural receptacle, covered externally with coarse hair, the musk is in grains, unctuous, black, and of a strong smell and bitter taste. Water by infusion extracts some of its active principle; but alcohol is its proper menstrum.

This is administered in many spasmodic diseases, especially hysteric, epilepsy, and singultus, and in diseases of debility also. It is given in typhus to relieve subsultus tendinum,

&c., in other diseases to allay any spasmodic action, vomiting, &c. &c.

It is upon the whole a medicine I think of doubtful efficacy, and from its high price is not likely to be much used. Its dose is from 6 to 20 grains, repeated every five hours.

CASTOR. CASTOREUM.

THE beaver, a native of the north of Europe, Asia and America, is the animal that affords castor. It is contained in membranous cells near the extremity of the rectum. It is that contained within the bag and not the membrane itself that is used. The best is brought from Russia. The active matter is dissolved by proof spirit, and partly by water, the tincture with alcohol is best, it is used in the cases for which musk is, in dose of from 10 to 20 grains, or from one to two drachms of the tincture. It is a remedy of but little or no power, I have frequently given it in double the above quantities without any sensible effect.

EMPYREUMATIC ANIMAL OIL.

THE fresh bones of animals when exposed to heat in close vessels afford this oil. This is at first a thick consistence, black color and foetid smell, but by repeated distillation becomes thinner, and transparent, but remains foetid. Its dose 10 or 15 drops. It is of no consequence, but to make show and keep up mystery the doctors use it. This the ignorant suppose to be fat taken from the dead.

Bitumen petroleum exists as a natural production, it is of no medical consequence.

Assafoetida is a gum-resin, obtained by making incisions into the roots of the plant, the juice being inspissated (dried by the exposure to the sun. It is in small masses, yellow on the surface, white within, of an extremely foetid smell, and bitter, subacid taste.

This is used as antispasmodic in all spasmodic diseases; in amenorrhoea, hysteria, dyspepsia, &c. Its dose is from 5 to 10 grains of the gum, which must be repeated, it is likewise given in form of clyster diffused in water. It is given also as

a remedy against worms, and some times used as a plaster. All its virtues are yielded to spirits.

Galbanum is a gum the product of a plant, which is a native of Syria and the Cape of Good Hope. Alcohol dissolves it. Its dose is 10 grains, but it is most commonly used externally as a discutient to tumors, or to promote suppuration.

Valerian. The root is the part of this plant used in medicine. It consists of slender fibres twisted and attached to one head of a light brown color, having a strong and unpleasant smell, and a warm bitter taste. Its active matter is dissolved equally by water and alcohol. Its dose is from one scruple to one drachm, but it is generally used in infusion : it is not of much consequence.

Cajuput oil. This is obtained by distillation from the leaves and fruit, the odor, and use, is similar to that of camphor. It is of a green yellowish color. The dose is from 3 to 4 drops.

Emetics are the most effectual of all antispasmodics.

TONICS.

By tonics are understood those substances, the operation of which is to give strength to the system.

The principal medicines used as tonics are,

From the Mineral kingdom.

Argentum,	Bismuthum,
Hydrargyrum,	Barytes,
Ferrum,	Calx,
Zincum,	Acidum Nitricum,
Arsenicum,	Hyper-Oxymurias Potassa,
Cuprum.	

From the Vegetable kingdom.

Cinclrona,	Laurus Cinnramonum,
Aristolochia,	Laurus Cassia,
Contrayerva,	Canella Alba,
Croton Eleutheria,	Myristica Maschata,
Cusparia Febrifuga,	Carophyllus,
Swietenia,	Capsicum Annum,

Columbo,	Piper Nigrum,
Quassia,	Myrtus Pimenta,
Gentiana,	Zingiber,
Anthemis Nibilis,*	Zedoaria,
Citrus Aurantium,	Repens,
Citrus Medica,	Carum Carui,
Acorus Calamus,*	Coriandrum Sativum,
Mentha Piperita,*	Anisum.

SILVER ARGENTUM.

SILVER is readily oxidated and dissolved by those acids that yield oxygen readily, particularly nitric acid. When dissolved in nitric acid, and evaporated the residuum is the nitrate (tunor caustic) of silver. This is too powerful a tonic to be much used as such, its dose is a quarter of a grain, and it must always be dissolved in distilled water.

Mercury or Quicksilver. Hydrargyrum. Argentum Vivum. This has been placed generally under the head of sialogogues, but salivation is a secondary effect and not essential in any disease. Its tonic power is its primary operation, it is the most general stimulent in use pervading every part of the system. This metal remains fluid at all natural temperatures, with the exception of the intense cold that sometimes prevails in very northern regions. It is about 13 times heavier than water, and boils at a temperature of 600°, and suffers oxidation with agitated at natural temperature.

Mercury is variously prepared for medical purpose. I shall only mention those in common use. Corrosive sublimate of mercury is prepared by taking of pure quicksilver two pounds; sulphuric acid thirty ounces; dried muriate of soda four pounds: boil the mercury with the acid in a glass vessel until the sulphate is left dry. Rub this when cold with the soda in an earthen ware mortar, then sublime it in a glass vessel, increasing the heat gradually, dose 1-16 of a grain.

Calomel. Submuriate of mercury: take of corrosive sublimate (oxymuriate) of mercury one pound; purified mercury, nine ounces, rub them together until the globuls disappear, then sublime three times, taking it out and reducing it to powder every time—dose 10 to 20 grains.

To purify mercury take six pounds, iron filings one pound, rub them together and distill the mercury in an iron retort.

Red Precipitate. Nitric oxide of mercury. Take

three pounds of purified mercury, nitric acid one pound and a half, distilled water one quart, boil in a glass vessel until the mercury is dissolved. Then evaporate the solution dry, with a gentle heat, grind this to powder, then put it into a glass cucurbit and cover it, place the vessel into a sand bath, heat it gradually until the matter is converted into red scales.

White precipitate of mercury. Take of oxymuriate of mercury half a pound, muriate of ammonia four ounces, solution of subcarbonate of potash half a pint, distilled water four pints. Dissolve the muriate of ammonia in the distilled water, then put in the oxymuriate of mercury, then add the solution of the subcarbonate of potash, wash the precipitate powder until it becomes tasteless then dry it.

There are many more preparations of mercury similarly prepared, used principally as external application in form of ointments and lotions. The corrosive sublimate, and calomel are the only preparations much used internally. The corrosive, or oxymuriate of mercury should seldom be given, and never in larger dose than one sixteenth of a grain. Calomel or the mild muriate is safe in dose of 10 to 20 grains; but what ever form of mercury is used, it should be combined with or followed by other evacuants.

The ointments &c. will be spoken of in their proper place.

IRON FERRUM.

NUMEROUS preparations of this metal are medicinally employed. The filings are given in dose of from a scruple to a drachm. Their activity depends on the oxidation they suffer in the stomach.

Rust of iron. Subcarbonate, ferri rubigo, is the metal rusted or oxidated, by the action of air and water, it is more active than the saline preparations, and not so irritating, the dose is from 5 to 20 grains, besides its use as an invaluable tonic, it has been used as a remedy in cancerous ulceration, administered in its usual dose, and sprinkled on the sore.

Tincture of iron. Muriate of iron employed under the form of tincture is prepared by dissolving the oxide of iron, half a pound, muriatic acid three pounds, alcohol three pints, mix the acid and iron in a glass vessel, and shake it occasionally during three days, when it has settled, pour off the

the liquor, evaporate slowly to one pint, and to this liquor add the alcohol, dose 10 to 15 drops.

Copperas. Sulphate of iron. Green vitriol. It is obtained in various ways; it is obtained pure by dissolving iron in sulphuric acid (oil of vitriol,) and water, and evaporating the solution: dose from one to five grains.

Tartrate of potash and iron is prepared by rubbing one part of iron filings, and two parts of supertartrate of potash, exposing the mixture to the action of the air, and again subjecting it to the action of water to render the oxidation, and combination more complete. This is a mild preparation and may be given as a tonic to the extent of 10 or 15 grains as a dose.

Wine of iron. Digest iron filings in white wine, dose one drachm.

The mineral Chalybeate waters is another form under which iron is frequently and successfully given. The iron is generally dissolved in them by carbonic acid. There are other preparations used, but these are the principal, and perhaps not surpassed by any other known.

Zinc. Zincum. This in its metallic state exerts no action on the system: it is therefore employed under various forms of preparation, which in general possess a tonic and astringent power.

White oxide of zinc is obtained by the combustion of the metal and has been employed as an antispasmodic, and tonic in the dose of five grains, but it is not very active.

Tutia is an impure oxide of zinc. Calamine stone (lapis calaminaris) is a carbonate of zinc; it is dusted on slight excoriations, and it forms the basis of common cerate.

* *White vitriol.* Sulphate of zinc, is made by cutting into small pieces three ounces of zinc, pour upon it five ounces of sulphuric acid, twenty of water, when the effervescence is finished, digest the mixture on hot sand, strain through paper, and evaporate. This is chiefly found native; it operates almost instantly as an emetic in dose of 10 to 15 grains, and is perfectly safe. Employed internally in dose of two grains it is a tonic, it is externally used as a styptic, to stop bleeding, and as an astringent in any case where they are required.

Copper. Cuprum. This is extremely noxious to life. Its most important compound is,

Blue vitriol. Sulphate of copper is generally obtained by evaporating mineral waters that contain it, or by calcining the sulphuret of copper, and exposing it in a humid state to the air.

It is chiefly used as a styptic, and escharotic, internally it operates in very small doses as a powerful emetic: it is too dangerous for internal use.

Verdigris. Subacetate of copper is made by covering copper plates with the husks of grapes after the juice is pressed out. The crust which forms is scraped off and beat into masses and dried, it is of a bright green color. This is principally used immediately as an escharotic.

Arsenic. This is found sometimes native, or in a state of oxide, but more generally combined with sulphur forming the ores named Orpiment and Realgar.

This is of the most virulent of the mineral poisons. Yet it has been frequently employed in medicine, and has afforded all the powers of the most quick and effectual tonics. It has been used in agues, hydrophobia, painful nervous affections, lepra, &c. (see liquor arsenicalis.) The powder used externally as an escharotic in scirrhus and cancer.

Lime. Calx. This is a well known production, and the principal use made of it medicinally, is the preparation called lime water; which see.

Aqua (water) Fortis (strong.) Nitric acid. This is obtained by decomposing nitrate of potash by sulphuric acid, assisted by heat. The sulphuric acid combines with the potash, and the acid of the nitre distils over in the state of nitrous acid, this exposed to gentle heat is converted into nitric acid, that is, it becomes a little stronger.

This is an invaluable tonic, and in almost all cases where salivation by mercury is necessary, this will be found to supersede its use: dose, from 10 to 20 drops in sweetened water, every two hours gradually increased.

VEGETABLE TONICS.

Peruvian bark. Cinchona. This is the bark of the tree dried in the sun. The pale bark is bitter and slightly astringent, its flavor is aromatic with a degree of mustiness. The

red bark is of the *circhona, oblongifolia*, which grows on the Andes. Its taste and smell are similar to those of the pale, but rather stronger.

The yellow is more bitter, with scarcely any astringency. The active principle is partly extracted by cold water, much more by hot water and entirely by alcohol.

This is used in all cases in which tonics are required, and especially in the intermissions of all fevers. Its dose is half a drachm, or more if it will sit easy on the stomach. If it does not agree with the stomach, a smaller dose must be tried or some aromatic, or a few drops of laudanum may be combined with it.

The powder is the most effectual, it may be given in spirits, wine, milk, water, &c. The decoction is the next best form, and may be given in dose of a large table spoonful once an hour. The cold infusion is too weak, the spiritous tincture cannot be used to advantage on account of the spirits, but is occasionally used as a stomachic. A decoction of the bark is also used for injections, and applied as fermentations to ulcers, or the sprinkled on the surface.

Quinine. Sulphate of quinine. This is obtained in the following manner, boil repeatedly the yellow bark in water acidulated with sulphuric acid. The coloring matter is separated by adding quick lime to the liquor, wash the precipitate in cold water, and submit this to the action of alcohol 36 degrees, then evaporate, and boil the residue in diluted sulphuric acid; on cooling, crystals of pure sulphate of quinine are obtained.

This is the active principal of the bark: dose from 1 to 5 grains. It is a sure cure for ague, and perfectly safe if preceded by an emetic.

Cusporia febrifuga, is a bark imported from the West Indies. It has been recommended as a substitute for peruvian bark, but it is now principally used to counteract putrefaction, and in diarrhea, and chronic dysentery, its dose is from ten to twenty grains of the powder.

Columbo. This is the root of the plant, generally brought from Ceylon, Africa, and Mozambique. It is cut in round thin pieces, of a light yellow color, has a faint aromatic smell, and a bitter taste. It yields its bitterness to water: proof spirit is its proper menstruum. This is a valuable tonic, especially in affections of the stomach. Its dose is half a

drachm of the powder once in three hours. It may be used in tincture or infusion, or combined with other bitters.

Gentian. The root is a tonic bitter, and is used in almost all stomachic bitters. Its dose in powder is half a drachm. Chamomile* is a good tonic, given generally with other bitters.

The following and many others are employed principally on account of their aromatic qualities, to cover the taste of other medicines and as a grateful stimulant to the stomach.

Orange. Citrus Aurantium. The leaves, flowers, distilled water and essential oil of the flowers, the juice and outer rind of the fruit, and the unripe fruit, are used.

The juice is a grateful acid liquor. The outer rind of the fruit is a pleasant aromatic bitter. The juice is of considerable use in febrile or inflammatory distempers, for allaying heat and quenching thirst, and is likewise of use in scurvy. The *rind* is an excellent stomachic, it is given infused with other tonics : dose, at discretion.

Lemon. Citrus Medica. The juice and outer rind of the fruit, and the volatile oil of the outer rind, are used. The peel is similar to that of orange.

Cinnamon, is the interior bark of the branches of the tree. That which is thin and rolled up (convoluted) is strongest. It is one of the most pleasant of the aromatics. It is employed with other tonics, and alone in the form of watery infusion as a moderate cordial.

Cassia is similar to cinnamon, but not so good a tonic, it breaks short, and is much thicker than cinnamon.

White Canella. Canella Alba. This is the inner bark of the branches of the tree. It is in quills or flat pieces, of a light yellowish gray color. Its aromatic quality is extracted by alcohol and partly by water. It is used with other tonics, and to cover the taste of aloes.

Nutmegs and Mace. *Myristica Moschata.* Nutmeg is used in medicine as an aromatic. It is the seed or kernel of the fruit ; *mace* is the inner covering or that which immediately surrounds the nutmeg, it is used for the same purpose as the nutmeg.

Cloves are the production of a tree, native in the Molucca

islands, but cultivated in other parts of India. They are the most stimulating of the aromatics, and are used in combination with other bitters. The oil is used with the same intention.

The Peppers have all a similar operation, differing only in strength. Cayenne pepper is the fruit of a plant. Black pepper is the unripe fruit of the plant dried in the sun. Cubebs are the dried fruit of the tree; they are all powerful stimulants; and the latter is given in dose of three drachms in the course of the day, for gonorrhea.

Ginger. *Zingiber*, is the root of the plant, and is a grateful aromatic.

Cardamom. *Amomum Cardamomum*. The seeds are a pleasant aromatic and are frequently combined with bitters and purgatives to obviate flatulence.

Anise; the seeds have an aromatic odor and a warm and sweet taste. They are used chiefly in flatulency; either the seeds in infusion, or a few drops of the oil on sugar may be taken.

ASTRINGENTS.

ASTRINGENTS are such substances as applied to the animal body produce contraction and condensation in the soft solids, and thereby increase their density and cohesion. (They corrugate, or pucker the part to which they are applied.)

Oil of Vitriol. Sulphuric Acid. It is formed by reducing sulphur to powder and mixing it with one eighth of its weight of nitre. The mixture is laid on a hollow stone in a large lead vessel containing a quantity of water, it must be kept closed, only occasionally opened to admit the air. This must be set on the fire, and the sulphur mixture added a little at a time. When the water has become quite sour, remove it and evaporate in leaden vessels, and afterwards boil in a glass retort.

This acid is employed as a refrigerant, but principally as an astringent. It is used to check the flow of blood, and profuse sweating, &c. It must always be diluted with water, its dose is from ten to twenty drops. It is also an excellent tonic.

Alum. This is compound of argillaceous earth and sulphuric acid, the acid being in excess, it also contains a little potash. It is found native, exuding from slate rocks. Its dose is from five to ten grains, and given to check dysentery, profuse bleeding, &c. &c.

Quick lime. Calx Viva. The water is employed as an astringent, in dose of one or two pints in the course of the day.

Iron is employed as an astringent; the sulphate and muriate of iron are the preparations used; dose from three to ten grains.

Zinc is used as an astringent, the sulphate has been employed in dysentery, and immediate discharges of blood with good success, in dose of from one to three grains. Two grains dissolved in an ounce of water makes the common astringent lotion, which is good to apply to all bleeding surfaces, and as an injection in gonorrhea, and gleet. The *acetate* is also used as an astringent, prepared by adding a solution of sugar of lead to a solution of sulphate of zinc, a decomposition takes place, and a sulphate of lead is thrown to the bottom, and the acetate of zinc remains dissolved. This is used for the same purposes as a solution of the sulphate.

Blue Vitriol. Sulphate of copper is used in dose of one to three grains, or in solution alone, or with alum, in the same manner as last mentioned.

Lead. Plumbum. The effects of lead and its preparations on the body are, emaciation, violent colics, paralysis, tremors, and contractions of the limbs. The poisoning from lead is generally accidental, either from liquors being impregnated with it, or being kept in vessels lined with it, or to which lead has been criminally added to correct its acidity. Or among manufacturers who work among lead, as painters and plumbers.

Litharge is a subcarbonate of lead. *Ceruse* is the white oxide of lead. These will be directed in the formation of plasters.

Sugar of Lead. Acetate of lead. Saccharum Saturni, is a most valuable astringent, and may be given in dose of one to three grains, but there must not be more than two or

three doses given before it must be physiced off, to prevent its injuring the system. It is used in solution as an astringent.

It is supposed that astringency in vegetables resides in, or is what is called tannin.

Galls are found on the branches of a species of the oak, their production is occasioned by the bark being pierced by an insect. The juice exudes and hardens. The best galls are heavy, knotted, and of a blue color. They are almost entirely soluble in water. The infusion reddens the vegetable colors from the action of the garlic acid. These are seldom internally administered. In decoction, and the powder in ointments, they are used as the other astringents externally.

Rose Water, is an infusion of the leaves; acidulated, it is a pleasant astringent gargle.

Catechu. This is an extract prepared from the wood. It is of a yellow or brown color, has a bitter and astringent taste; its qualities vary very much. It is an astringent in common use; it yields nearly all of its virtues to water; dose, ten to twenty grains, frequently repeated.

Kino. The history of this is obscure, it is however a vegetable production; it is of a reddish brown color, with a resinous lustre, is very brittle, feels gritty and has a bitter taste. Put a tea-spoonful into a tea-cupful of warm water and give a tea-spoonful every thirty minutes, in flowing and other bleeding from internal parts.

Red Saunders. *Santalum Rubrum*. The wood is of a deep red color. This is now used only to give color to tinctures.

Cranes bill. *Geranium Maculatum*. Is a powerful and safe astringent.

EMETICS.

EMETICS are those medicines which excite vomiting, independent of any effect arising from the mere quantity of matter introduced into the stomach, and which have this effect in every individual and in all states of the stomach. The stomach remains for some time undisturbed after an emetic has been given.

The first symptoms are uneasy sensation, nausea, pale countenance, the pulse is feeble, quick, and irregular, and there is a feeling of cold; but when the vomiting commences the face is flushed and a perspiration generally covers the whole body. The vomiting generally recurs twice or thrice and then subsides, the sickness going off gradually. In the operation, the natural motion of the stomach is inverted, and the surrounding parts contract and the contents of the stomach are discharged upward.

Antimony. This is a metal which under various forms of preparation furnishes some of the most powerful emetics, cathartics, diaphoretics and expectorants.

Tartar Emetic. Antimonium Tartarizatum. Tartras Antimonii et Potassæ. This is obtained by taking the powdered metal one part, sulphuric acid two parts, boil them dry in an open vessel, stirring the mixture with an iron spatula, wash it with water and dry the residuum. Add to this an equal weight of supertartrate of potash dissolved in water, boil in an iron vessel, strain, and set by to crystalize. This is an active emetic, and may be given in doses of from five to ten grains dissolved in half a pint warm water. It is also used in small doses as a sudorific.

Wine of antimony is a solution of emetic tartar and potash in white wine, or rather this is a substitute for the wine formerly used; dose, tea-spoonful once in twenty minutes until it operates. These are the most valuable preparations of this mineral.

To give the tartar emetic it will be a safe way to put a quarter of a tea-spoonful into a half pint of warm water, then give a wine-glassful every fifteen minutes until it begins to operate.

Sulphate of Zinc has already been mentioned as a powerful emetic: dose five to ten grains in half pint warm water.

Sulphate of Copper, operates as an emetic almost as soon as it reaches the stomach, and without producing much nausea. Its operation is apt to be violent: dose from one to two grains.

Ammonia, operates as an emetic in dose of a tea-spoonful or two being given in a cup of cold water.

Hydro-Sulphuret of Ammonia. This is obtained by passing a current of sulphuretted hydrogen gas through a solution

of ammonia in water. This is given in small doses in diabetes; in large dose, it is a powerful emetic: dose five to fifteen drops. To have an emetic effect, half a tea-spoonful in water.

Ipecac. Collicoccea Ipecacuanha. The root is the part of the plant used, its active matter is completely extracted by proof spirit. Emeten is the active principle and operates as an emetic in dose of half a grain. Ipecac in the pulverized root is the mildest and most effectual emetic in use: dose from one to three tea-spoonfuls in a tea-cupful of hot water. It is frequently given to nauseate the stomach, to abate the circulation, and to promote perspiration in dose of three or four grains once in two hours. The infusion in white wine acts as an emetic in dose of an ounce. This is the best vegetable medicine in the materia medica.

Squills. Scilla Maritima. This is the root of a plant or onion, which grows on the sandy shores of Spain and Italy. Its active matter is extracted by water, alcohol, and vinegar; vinegar is best. The vinegar of squills operates as an emetic in dose of two or three drachms; but this is generally used for purposes which are afterwards to be noticed.

Camomile. Anthemis Nobilis, a strong infusion taken in large quantities excites vomiting, and is generally taken to assist the operation of other pukes.

Lobelia Inflata. Indian Tobacco,* is a valuable emetic.

CATHARTICS OR PHYSICS.

CATHARTICS are those medicines which increase or quicken the evacuations from the intestines, by stimulating them so as to increase the natural peristaltic motion of the bowels.

Mild Cathartics or Laxatives. *Manna*, is usually obtained from a species of the ash tree, it has a sweet taste and is soluble in water and alcohol. The dose is from one to two ounces, but it is so mild that it is generally mixed with senna or some other physic.

Purging Cassia. Cassia Fistula. The pulp of the fruit is employed mostly with senna.

Tamarind. The pulp, seeds, and small fibres mixed with sugar to preserve it, are the tamarinds of the shop; dose

from one to two ounces. It is also refrigerant in form of infusion.

Castor Oil Plant. Ricinus Communis. Palma Christi.* the oil of the seeds is an invaluable laxative : dose one ounce.

Sulphur, is found in nature nearly pure ; dose two or three drachms.

Magnesia. Carbonas Magnesia. This is an earth, and when found is combined with acid. It is a mild laxative, and an absorbent.

PURGATIVES.

Senna. The dried leaves are of a yellowish green color, have a faint smell, and a bitter taste. It is usually given in the form of the watery infusion, two drachms being infused in six ounces of hot water, a little ginger or a few coriander seeds should be added.

Rhubarb. Rheum Palmatum.* Dose as a cathartic, one scruple. It is used as a tonic with other bitters in the dose of a few grains. It is in this respect particularly useful in female weakness.

Jalap. Convolvus Jalap. The root is the part of the plant used. This is an active purgative ; proof spirits extract or dissolves its active matter ; it is employed alone or combined with other physicks. Its medium dose is half a drachm.

Black Hellebore. The root of this plant is a powerful cathartic in a dose of two or three grains. It is seldom used.

Wild Cucumber. Momordica Elaterium. Elaterium is the dried fecula of the juice of the fruit. It is a violent cathartic in the dose of from one to three grains. It is given as a hydragogue in dropsy. Its operation may be checked by a solution of tartaric acid, or by taking vinegar.

Aloes. Aloes Socotorine and Barbadoes. Aloes is a concrete resinous juice. There are several varieties met with in the shops. The Socotorine, brought from the African Island of Socotora. The taste of all the aloes is intensely bitter ; its active matter is dissolved by diluted alcohol and by boiling water : dose from five to fifteen grains. It is particularly useful in hypo (hypochondriasis) and jaundice. It

is often combined with other medicines, which will be afterwards spoken of.

Scammony, is obtained by collecting the milky juice of the roots and permitting it to inspissate in the sun and air. It is in small fragments, of a blackish gray color, having little smell, and a bitter subacid taste. It is what is named gum resin, and is dissolved by proof spirits : dose from five to ten grains. It is usually combined with the super-tartrate of potash, aloes, and other cathartics.

Gamboge. This gum resin is obtained by exudation from incisions in the branches and trunk of the tree, and is afterwards dried away (inspissated.) This is a very active cathartic, liable in large doses to puke : dose as cathartic, from two to six grains. It is generally combined with other cathartics, is used to expel the tape-worm, and as a hydragogue cathartic in dropsy.

Calomel. Sub-murias Hydrargyri. Nearly all the preparations of mercury have a purgative power. Calomel is that most commonly used. Its dose is from ten to twenty-five grains for an adult ; it is more speedy and certain when combined with jalap, or rhubarb, or castor oil. Calomel promotes the operation of other cathartics without increasing irritation, or rendering the operation violent. It operates directly on the liver, and on the glandular system generally, producing salivation.

Epsom Salts. Sulphate of Magnesia. This is generally obtained from the water remaining after the crystalization of common salt from sea water : dose from one to two ounces, dissolved in warm water.

Glauber Salts. Sulphate of Soda. This is one of the saline purgatives in common use ; dose one ounce dissolved in water.

Cream of Tartar. Super-tartrate of Potash. This salt is deposited from wine, in the progress of the slow fermentation which it suffers when kept. This is a pleasant and mild purgative : dose, half an ounce. It makes a grateful beverage, dissolved in water, but it must not be long continued, as its acid will injure the stomach.

Rochelle Salt. This is one of the saline cathartics : dose one ounce dissolved in warm water.

Phosphate of Soda : dose one ounce dissolved in warm water, or soup without salt.

Muriate of Soda. Common salt.

Venice Turpentine. This is employed as a cathartic in form of enema, (injection,) mixed with yolk of egg and water : quantity, half an ounce.

Mandrake.*

Croton Oil. This is obtained from the seeds of the plant called croton tiglium. The oil now used is of a pale reddish-brown color, with a faint odor, and possessing a hot acrid taste. This is a powerful cathartic. Observe these directions and it will prove as safe as butternut pills ; do not give it unless a brisk operation is desired, or other physics have been given without effect : dose, make one drop into a pill with crumb of bread, or drop it on loaf sugar, give this, and repeat every ten minutes until it begins to operate. After it is taken wash the mouth with milk, or some mucilage.

EMMENAGOGUES,

ARE those medicines which are capable of promoting the menstrual discharge.

Assafetida. All the foetid gums have been supposed to have the power of operating peculiarly on the uterine system. Assafetida is given in dose of ten or fifteen grains daily, continued for some time. Galvanum may be given in similar dose ; these are given more especially when hysterics are present.

Iron. The carbonate of iron is given in dose of 5 to 10 grains. The muriated tincture, 10 to 15 drops thrice a day in water, or some aromatic tea.

The chalybeate waters are the best forms for administering iron.

Calomel is used in dose of one grain a day, alone, or combined with other emmenagogues.

Aloes, in pills or tincture is used as an emmenagogue, as also combined with rhubarb, calomel, iron, &c.

Rhubarb is used, generally combined with aloes, either in pills or tincture. The tincture is taken in dose of a drachm night and morning.

Mustard seed is taken in dose of half a table spoonful once a day, not bruised. *Rue* made into tea is sometimes used, as is also *Tansy*.

Savin and *oil* of *savin*, are recommended. They have been supposed capable of producing abortion, but they have but little or one effect on the system.

Seneka Snake root, is an efficacious emmenagogue. The best mode of giving it is to simmer an ounce of the bruised root in a pint of water, until the quantity is reduced one third, a wine glass full may be taken thrice a day.

Smut Rye. *Ergot*. *Secale Carnutum*. This is recommended as an emmenagogue, but it dose not possess the power of increasing the discharge from the womb.

DIURETICS.

By *diuretics* are meant those medicines which increase the discharge of urine.

Potash. *Potassa*. This alkali either pure or in the state of subcarbocate, operates as a diuretic, and if continued long it renders the urine alkaline. When employed its dose is 28 or 30 grains dissolved in a large quantity of water. The proportions of *potash* are used a great deal in dropsy.

Sal Diureticus. *Acetate of Potash*: this in dropsy is given in dose of half a drachm dissolved in water, being repeated every two hours until it operates.

Cream of Tartar. As a diuretic, half an ounce dissolved in half a pint of water, may be taken in the course of the day.

Nitre. *Nitrate of Potash*. This is a refrigerant and diuretic, and is used in dropsies, and all cases of difficulty of urine: dose from 5 to 20 grains thrice a day, with the free use of mucilaginous drinks.

Spirit of Nitre, is nitric acid and alcohol in certain proportions: dose a teaspoonful in cold water, once in an hour or two. It is refrigerant and diuretic.

Squill. As a diuretic, squill is always given in substance either the recent or the dried root. The dose is from two to

five grains, gradually increased. If the dose is too large it will excite nausea. The squill will be more effectual if given with a small dose of calomel, or the mercurial pill. It may be taken morning and evening.

Fox glove. *Digitalis Purpurea*.* This is more powerful than most any other diuretic in evacuating the water in dropsy. In dropsy of the chest it is the most certain means of evacuating the water that we possess. It frequently requires to be exhibited several days before it promotes the flow of urine; dose of the powdered leaves, one grain twice a day; of the infusion, half an ounce; of the tincture, 10 to 15 drops. It must not be continued but for a few days at a time. If taken in too large doses, give warm spiritous cordials, ether, ammonia, or vinegar.

Tobacco. Infuse in a pint of water, an ounce of the dried leaves; give ten drops and gradually increase to a hundred, if it does not have effect before.

Broom-corn tops, boiled in water, and the water drank, proves a free diuretic.

Juniper Berries, given in infusion prove diuretic. It is this diuretic property retained in spirits that renders Gin so valuable a diuretic in dropsy.

Balsam of Copaiba. This is a resinous juice procured by exudation from incisions made in the trunk of the tree. It increases the urinary discharge, in dose of 20 or thirty drops. In larger doses it is liable to produce inflammation of the urinary organs. It may be made into pills with crumb of bread, or dropped on sugar. *Canadian Balsam* is used for the same purpose and in the same quantity.

Oil of Turpentine is given as the above in dose of five to ten drops.

Spanish Fly. *Cantharides.* This insect is found adhering to the leaves of certain plants in Spain and Italy. They are killed by exposing them to the vapor of vinegar, and then dried in the sun. Their acrid matter is extracted both by water and alcohol. They inflame and blister the skin. They are more commonly used internally in cases of inability to retain the urine, dose of the tincture, fifteen to twenty drops, (see tincture.)

Wintergreen in infusion, or tea, is powerfully diuretic,

and should always be drank to assist other diuretics. *Pumpkin seed* tea is also an active diuretic.

DIAPHORETICS.

DIAPHORETICS are those medicines which increase the natural exhalation by the skin ; that is, they produce perspiration, or sweating.

Subcarbonate of Ammonia. This is used either in the solid or liquid (*aqua ammonia*) form, dose ten to fifteen grains of the salt, half a drachm, or nearly half a teaspoonful of the water.

Sal Ammoniac. Muriate of Ammonia. The ammonia which is its base, is obtained by distillation from the urine, or bones of animals, or by maceration from the soot of coal. It is applied externally as a discutient to indolent tumors. Its dose as a diaphoretic is one drachm, dissolved in cold water. All of the preparations of ammonia are said to be diaphoretic, but they are very doubtful remedies.

Calomel, in small doses, or combined with opium, or guaiac, has a diaphoretic power.

Antimony. A sympathy seems to exist between the stomach and surface of the body, and thence the employment of nauseating medicines to promote sweat. For this purpose the different preparations of antimony are given : tartar emetic, one to three grains an hour, or a solution in dose of a teaspoonful once an hour until it produces perspiration. They should be assisted by drinking freely of warm teas. They may be combined with opium, ipecac, &c.

Opium, in a large dose assisted by warm drinks, excites profuse sweating : it is not safe given alone, combined with ipecac and camphor, or with antimony, or in the form of Dover's powders (which see) it is safe and effectual.

Camphor, dose from five to fifteen grains. It will be more effectual if combined with opium, nitre, calomel, &c.

Guaiacum. The wood of the tree, and a resinous substance obtained by incisions in the trunk are the parts used. The wood is steeped in water and drank, a quart in the course of the day. The gum may be taken in dose of 6 to 10 grains. These are also used to assist the operation of mer-

cury in the venereal complaint. The gum is frequently given in tincture : dose, a teaspoonful in some kind of tea, or mucilage.

Sassafras, Sage, Boneset, and White Root, in strong tea or decoction are used as diaphoretics, and especially to assist the operation of other sudorifics.

EXPECTORANTS.

EXPECTORANTS are those medicines which facilitate or promote the rejection of mucous, spittle, or other fluids from the throat, the lungs and trachea.

Antimony is in use as an expectorant, tartarized antimony is the preparation most commonly used : dose 1 to 2 grains once in an hour or two, this gives relief in whooping cough, asthma, and catarrh. It is frequently combined with other expectorants.

Ipecacuanha, is similar to antimony in its operation ; dose two to four grains. It is also combined with antimony, squills, and other expectorants.

Foxglove, is employed with advantage in difficulty of breathing, asthma, catarrh, &c. It diminishes the accumulation of fluid, and assists in removing that which is accumulated. The dose must be small, one grain of the dried leaves, or twenty drops of the tincture, or half an ounce of the infusion twice a day, will be sufficient.

Tobacco is well known as an expectorant, and having become an article of diet, it is difficult to tell the exact dose, say two or three grains of the watery extract ; it is similar to foxglove and nearly as poisonous.

Squill. This is one of the principal expectorants in colds, and all affections attended with cough or difficult breathing. It is used under the form of vinegar, or syrup of squills ; dose of the vinegar, a teaspoonful ; of the syrup two teaspoonfuls every two hours.

Garlic is similar to squills in its effects, and may be prepared and given in the same way, or it may be given in substance, in powder or pills, half a teaspoonful.

Seneka, or Rattlesnake root. This root is in articulated shoots, of grayish color ; its taste is bitter and pungent. Its

active matter is extracted principally by water, and completely by alcohol. This is a valuable expectorant, but must not be used if there is high inflammation; dose, in substance from ten to twenty grains, but it is generally used in decoction, boil half an ounce in a pint of water and give a tablespoonful every third hour.

Ammoniac Gum. This is the gum of the tree; dose ten to twenty grains. It is generally combined with squill and liquorice.

Myrrh is the produce of Arabia, and is the gum-resin of a plant. It is in small pieces of a reddish-brown color, and warm bitter taste. Alcohol dissolves it. Its dose is from 10 to 20 grains, but it is too stimulating to be used much as an expectorant.

Peruvian Balsam. Dose from five to fifteen grains. Its tincture is applied to foul ulcers.

Balsam of Tolu, is employed in tincture or syrup principally on account of its flavor.

Benzoin and Benzoic acid, are of no value as medicines.

Balsam of Gilead is seldom obtained pure in this country, and therefore but little used. It is similar to the other turpentine.

SIALAGOGUES.

SIALAGOGUES are those medicines which increase the spittle or salivary discharge. This may be affected by mastication (chewing) of substances; or by the taking of certain medicines, that excite the action of the vessels which secrete the saliva. They are of but *precious* little importance, but the Doctors use them, and we must mention them.

Mercury. The various preparations of mercury produce salivation; calomel is most commonly used. Salivation effected by mercury is attended with pain, heat in the mouth, with swelling and ulceration of the gums, the swelling frequently extending over the throat and face. These are checked, by gentle purgatives, opium, blisters to the throat, free exposure to cool air and frequently washing the mouth with a solution of borax, alum, or sage tea sweetened with honey.

Pellitory. The root is used, its taste is hot and acrid. It yields its active principle to alcohol: it excites profuse salivation. It is used in tooth ache and sometimes chewed in palsy of the muscles of the throat.

Horse Radish,* excites when chewed, a sense of heat, and a discharge of saliva.

Mazereon, when the bark is chewed, excites a salivary discharge. This is said to have effected cures in palsy of the muscles of the throat.

Ginger, Pepper, Mint, Tobacco, Lobelia, &c., are sialagogue, and frequently employed in tooth ache.

ERRHINES, OR STERNUTATORIES.

THESE are substances which occasion a discharge from the nostrils. Any substance in fine powder snuffed up the nostrils has this effect, and it is more or less in proportion to the acrid or stimulating nature of the substance used. They are used in colds, headache, inflammation of the eye, and pain in the ear. They are of but little, if any consequence. The principal errhine in use is tobacco, and snuff. The others are generally combined in what is called Cephalic snuff, (which see.)

BLISTERS. EPISPASTICS AND RUBEFACIENTS.

EPISPASTICS and Rubefacients differ only in the degree of their operation, they are therefore properly of one class. The term epispastic in the dispensatory is applicable to blisters only, but it is sometimes applied to any artificial issue, setons, &c.

By the increased action they excite, they act as stimulants, and also as evacnants in consequence of the fluid which they cause to be poured out.

Spanish Fly. Cantharides. Lytta Vesicatoria. This is the substance now almost exclusively employed to raise a blister, as it is certain in its operation, and not liable to produce deep ulceration. The cantharides being finely powdered are mixed with lard and wax, or rosin, so as to form a plaster of a proper consistence, which is applied to the part,

spread on firm cloth, thin leather, or brown paper of a convenient size, and kept on until a complete blister is raised, which generally takes from six to twelve hours. To hurry the operation in apoplexy, and typhoid symptoms, it is sometimes combined with mustard, pitch burgundy, turpentine, &c. Spanish Flies are apt to absorb and produce difficulty of urine, where we have reason to apprehend this, diuretics must be given while the blister is drawing.

After a blister has been raised, it may be kept running by irritating, dressing, or issue may be formed by orange peas, or beans, fixed to the inflamed surface by means of a slip of adhesive plaster.

*Potatoe Fly.**

Mustard. Sinapis. The flour of mustard seed mixed with vinegar and bread, or flour, makes what is named Sinapism. This acts as a powerful rubefacient, and where a blister cannot be used it is a good substitute.

Garlic, Onion, Horse radish. Bruised and applied to the feet and hands are excellent rubefacients.

Euphorbia and Burgundy Pitch. (Pix Burgundica.) Mixed one part of euphorbia to ten of the pitch, or twelve parts of litharge plaster, forms an excellent rubefacient.

Ammonia, dissolved in water (Aqua Ammonia or Harts-horn) applied to the skin is rubefacient, the common form is volatile liniment, which see.

Aqua Fortis. Nitric Acid. This is a powerful rubefacient, it is used in complaints where a counter excitement is quickly required. The acid should be diluted with hot water, with this the surface is to be rubbed, and as soon as pain is produced wash the part immediately with a solution of salt of tartar previously prepared.

ESCHAROTICS.

ARE substances which eat away, destroy, erode, or dissolve the animal solids. They are employed principally to remove excrescences, to make an ulcer, or to change an ulcer into a simple sore.

The acids though powerfully escharotic, are seldom used, on account of their fluid state.

Alum, when dried or burnt, is used in fine powder to check the growth of proud flesh, (fungous,) and rubbed with a little sugar, is used to take specks off from the eye.

Potash, in its solid state is powerfully escharotic, this is called *Causticum Commune Acerrimum*. This is made into paste and applied to form an ulcer, or to open a tumor. It is attended with severe pain and burning heat, after it is removed, apply a poultice. Potash is the best application to the bite of a mad dog, after incision.

Lunar Caustic. This is the caustic in common use. It is made by dissolving silver in nitric acid, and evaporating the solution to dryness, melting the mass, by gentle heat and running it into moulds. A little of it may be dissolved in water and applied, or the point of the pencil wet, touched to the part. It is used for the same purpose as potash.

Blue Vitriol. Sulphate of Copper. This is a mild escharotic. Its solution in water is frequently used to wash the surface of sores, to change their condition. It is also used in ointment, to remove specks on the eye, and the powder, or a pencil of it, is applied to destroy fungous that arises on the lids of the eyes in inflammation of that organ.

Verdigrise. This is generally made into ointment with lard and applied to sores.

Corrosive Sublimate. This in water, in the proportion of one grain to the gill, is applied to ulcers, especially to venereal ulcers, to itch, and other cutaneous eruptions.

Red Precipitate, and *White Arsenic*, are well known as caustics. The leaves of savin in powder, or made into an ointment, are frequently applied to old ulcers.

ANTACIDS.

THESE are the remedies which neutralize or destroy acidity (sourness) in the stomach, by combining with the acid.

Potash. The method of obtaining this is well known. Dissolve an ounce of potash in ten pounds of water, in cases of sour stomach, take a gill or two occasionally.

Soda. This is obtained from a vegetable growing on the sea shore, it is prepared in the same manner as potash, and

is similar in medicinal properties; five or ten grains, or dissolve in water and take as directed in potash.

Ammonia. The solution of ammonia in water, (aqua ammonia, spirits of hartshorn,) is some times used as an antacid to relieve pain in the stomach: dose twenty or thirty drops in a spoonful of water.

Lime. Calx. Under the form of lime water, (aqua calcis) is used as an antacid, in dose of four or five ounces. It is the best antacid for sour stomach in use.

White Chalk. Creta Alba. This is a carbonate of lime found abundantly in nature. When levigated and washed it is called prepared chalk: dose from one to four tea-spoonfuls mixed with any thing convenient. *Crabs Claws*, are merely chalk, with a little gelatin: dose, same as chalk.

Magnesia, is used as an antacid, it is given in the dose of a scruple, or half a table-spoonful. Magnesia mixes with the acid in the stomach and forms a purging salts, it must not therefore be used where a diarrhea is wished to be checked.

LITHONTRIPTICS.

ARE the medicines supposed to have the power of dissolving urinary calculi. (gravel or stone in the bladder.)

Modern chemistry has shown that stones in the bladder are of different qualities, and therefore what will dissolve one will not dissolve another. One is found to consist of a peculiar acid, in this instance alkalies are the proper remedies, and are sometimes effectual; and again they are found to consist of different chemical constitutions, which are easily dissolved by the acids. Now, it is asserted that the alkalies, and acids are given internally in such quantities that they impregnate the urine not only so much as to dissolve the stone in the bladder, but as when applied, to destroy a stone that has been taken from the bladder. Considering the importance of this subject, knowing the extreme suffering of the person laboring under this complaint, and the danger attending an operation, I hope I shall hazard nothing in suggesting the propriety of injecting through a hollow bougie into the bladder, a solution of the medicine; being at first weak, and increased in strength as the coats of the bladder will bear it. It must be obvious to every one that to take medicines internally, with a view of

reaching the bladder in sufficient quantity to effect the above, is attended, to say the best of it, with but distant hope. This experience proves.

Potash in solution is given in a dose of fifteen or twenty drops morning and evening, in water, increased gradually as the stomach can bear it, drinking freely of mucilages. The other preparations of potash are used in their common doses.

Soda, and its various preparations are also used as lithon-
triptics.

Lime water, in the quantity of a quart or two may be used daily.

Magnesia, in its pure state, in dose of a scruple, or half a drachm may be given twice a day.

Acids are employed when the above means fail. Almost all the acids have been employed. Much relief has been obtained from the vegetable acids, particularly the citric acid; and the muriatic acid has been used with advantage, and the other acids also: dose from twenty to forty drops thrice a day, given in a cup of water.

REFRIGERENTS. (TO COOL.)

REFRIGERENTS are such medicines as diminish the force of the circulation and reduce the heat of the body without occasioning any diminution of sensibility or nervous energy. They are used by the doctors in fevers &c. but they are of but little use.

All Acids are refrigerants, but the vegetable acids are the most so. The citric is the most employed; they form the juice of the orange and lemon. *Lemon juice* may be considered as the most valuable, and indeed the principal refrigerant. In the hot stage of fever lemon juice largely diluted with water and sweetened with sugar is a grateful beverage. Or the fruit sliced may be added to any diluent. A preparation which is much used, named the saline mixture, is prepared by adding soda or carbonate of potash and sugar to the juice, but the potash neutralizes the acid and renders it less efficacious.

The juice of the *orange*, *tamarinds* in water, the various *sorrels*, and *vinegar* are used for the same purposes, and may be drank occasionally through the day.

Cream of Tartar, in solution ; a large quantity in water sweetened with sugar, and flavored with the rind of lemon, is a pleasant cooling beverage. Its only disadvantage is its being liable to prove purgative.

Nitre. Salt Petre. (Salts of Nitre.) Nitrate of Potash. This is used by physicians in all cases where there is fever : dose, from five to fifteen grains every two hours.

Spirits of Nitre, is also given as a refrigerant, but *brandy* is just as proper as spirits of nitre, and that I presume no person of common sense would give in fever.

Borax, in solution, is used as a cooling gargle for the mouth.

DILUENTS,

ARE substances which increase the fluidity of the blood ; all watery liquors are diluents. They are given in inflammatory diseases, to quench thirst, dilute the blood and urine, and to promote the fluid secretions.

DEMULCENTS,

ARE used to prevent acrid matter from acting upon the sensible parts of the body.

Gum Arabic, is in common use as a demulcent ; it is allowed to dissolve slowly in the mouth, or a solution in water is drank occasionally in catarrh, difficulty of urine, &c.

Tragacanth, this gum has virtues similar to gum Arabic ; and is good in making pills, troches, &c.

Flaxseed, by infusion yields a large quantity of mucilage ; this is in common use as a demulcent.

Marsh Mallow, yields a mucilage from every part, by infusion or decoction, as does also the common mallow.

Liquorice, both the root and the inspissated juice, (liquorice ball,) are used as demulcents in infusion alone, or combined with other mucilages.

Sarsaparilla, is always given in decoction or infusion, frequently combined with other demulcents.

Sago, is obtained from the pith of the plant, it dissolves

when boiled in milk or water, and with a little sugar forms an excellent demulcent in diarrhea, and with sugar and wine, a nutritious article of diet.

Arrow, the root freed from its outer skin is grated down in water, which is poured off several times, allowing the fecula to remain. It is white and in fine grains. It is used in diarrhea and dysentery, and as diet for the sick.

Starch, is the fecula of wheat. This is used as a demulcent, and an article of diet for those who are recovering from sickness; and starch is frequently used in injections.

Iceland Liverwort. *Lichen Islandicus*. This is macerated for a while in cold water, then a decoction is made, which is both demulcent and nutritious.

Horn, (Hartshorn Shavings,) is freed from its outer covering, and the white part is rasped down for use. By decoction in water they afford an excellent jelly, to which must be added a little sugar and wine. It is used as those before named.

Isinglass, is obtained from several kinds of fish, which is boiled and used as the above.

Olive Oil. This is obtained from the fruit by expression. It is employed as a demulcent, in catarrh and some other complaints, and to sheath the stomach against acrid substances that have been taken into the stomach: dose, as large quantities as the stomach can bear. It is also applied as an emmollient externally, and is sometimes given as an anthelmintic.

Spermaceti, is a fatty matter obtained from the head of a species of the whale. It is a mild demulcent, and is given in catarrh and gonorrhea, mixed with sugar, or diffused in water by the medium of the white of an egg. It is used in ointments also.

Wax. *Cera*. *Bee's Wax*. To make it white, melt the wax and cast into thin cakes, expose them to light, air, and damp or wet, and it will become white. It is used principally in ointments and plasters to give them consistence.

EMMOLLIENTS.

THESE are such medicines as diminish the force of cohe-

sion in the particles of the solid matter of the body, rendering them more lax and flexible.

Heat and Moisture conjoined, is the principal emmollient. Water alone, or with different kinds of herbs, poultices, oils, or fatty substances, of which hogs lard (*axunge porcina*) is the principal, are the common emmollients.

ANTHELMINTICS,

Are remedies which expel worms from the intestines.

Several preparations of *Mercury* are employed. The black sulphuret, made by mixing quick silver and sulphur together in equal parts, is given in the dose of two or three grains.

Calomel is the most used of any preparation of mercury, and it has beside its anthelmintic powers the property of evacuating the intestines, thereby forcing them away. It is given alone in a dose of two to five grains to children and from ten to fifteen to adults.

Iron. Ferrum. The filings are given in a dose of one or two drachms; and the *rust* is given to the extent of three or four drachms every day.

Tin, in filings or powder is occasionally used as an anthelmintic.

Olive Oil, or any expressed oil is recommended in doses as large as the stomach can bear, taken every morning.

Oil of Turpentine. This essential oil is an anthelmintic of great power. It is the only remedy on which we can place dependence in cases of the tape worm. It generally produces purging, and by which the worm is expelled: dose, two ounces, if it does not operate in two hours, repeat it. It must be taken in some mucilage. It kills the worm. Turpentine is also used in injection in cases of worms in the lower part of the bowels.

Cowitch. Dolichos Pruriens. The down or fur that covers the outer part of the pod, in which the bean is contained, is scraped off and used as an anthelmintic. It must be mixed up with syrup or molasses: dose, from one fourth to half a tea-spoonful of the hairs or spicula. After this has been given an hour, give a smart dose of physic to carry it

off. It operates by irritation on the worms, it is perfectly safe, and more used now than any other vermifuge.

Worm Seed, the dose is half a drachm, followed by a brisk cathartic.

Indian Pink. *Spigelia Marilandica*. This is a native of Virginia and Maryland: dose from half a drachm to two drachms to an adult. As it has but a weak cathartic power it is common to follow it with senna or other physic. It is always steeped in water, and the infusion is given.

Cabbage Tree. The bark of the tree is the part used. It is given under the form of infusion, an ounce being boiled in two pounds of water; one ounce is given every minute until it operates as physic. It is a medicine of considerable power.

Gamboge. This is given a dose from five to twenty grains.

Pride of China. *Melia*. This is an anthelmintic of considerable power. It generally produces dizziness of the head. The bark of the root is the part used: dose, put four ounces of the bark into a quart of water, and boil down to a pint; give a wine glassful once an hour until four are taken. If it produces disagreeable effects, discontinue.

EXTRACTION OF PULPS.

THOSE fruits which afford a pulp, if they are unripe, or ripe and dried, boil with a little water until they are soft; the pulp through a hair-sieve, and boil it with a gentle heat in an earthen vessel, stirring it frequently that it may not burn, until it is of the consistence of honey, or set the vessel in another of water, which is to be kept boiling.

CONSERVES.

THESE are compositions of fresh vegetable matter with sugar.

Conserve of Orange Peel. Take of fresh orange peel, rasped fine, add while beating, three times its weight of sugar.

Conserve of Roses. Take the petals not fully blown,

(remove the keels) one pound, refined (loaf) sugar three pounds, bruise the petals in a stone mortar, then adding the sugar beat again until they form an uniform mass. In the same manner all conserves are prepared. They are of but little consequence, being generally to give consistence to pills, &c.

INSPISSATED JUICES.

THE juice expressed from vegetables, generally holds dissolved the principles in which the medicinal powers of the plant reside, with a large proportion of water, being liable to decompositions. The process employed, is to obtain the active matter in a more concentrated state. These preparations are called inspissated juices, formerly extracts. But many cases will not admit of this operation as volatile part is always dissipated, and this frequently contains the medicinal virtues of the plant.

General Rule. The fresh leaves are to be bruised, and being inclosed in an hempen bag, are to be pressed strongly, that they may give out their juice, which is to be reduced by evaporation in open vessels, heated by boiling water, saturated with muriate of soda, (common salt,) to the consistence of honey. The mass, after it has cooled, is to be kept in glazed earthen vessels, and moistened with alcohol.

FIXED OR EXPRESSED OILS.

Oil of Almonds. Take of fresh almonds, any quantity, bruise them in a stone mortar, put them in a hemp bag, and express the oil by means of a press, without heat.

Castor Oil. Oleum Ricini. Bruise the seeds and express the oil without heat. In same manner are all the fixed oils to be obtained.

EMULSIONS AND MIXTURES.

EMULSIONS are preparations in which the expressed oil of the seeds or kernels from which they are made, is diffused

through water by the medium of the sugar, mucilage, and fecula which the seeds contain.

Arabic emulsion. Take of mucilage of gum Arabic, two ounces; almonds, one ounce; refined sugar, an ounce and a half, water, two pounds. Macerate (soak) the almonds in warm water and peel them, then beat them in a stone mortar, first with the sugar, next with the mucilage, then add the water gradually, and strain the mixture.

Camphor emulsion. Take of camphor one scruple; almonds, sugar, of each half an ounce; water, a pound and a half. Beat the almonds in a stone mortar, with the camphor and sugar previously well rubbed together, then pour the water on gradually and strain.

In a similar manner any emulsion may be prepared. They are generally prepared extemporaneous, and may be given in a dose of an ounce or two.

INFUSIONS.

INFUSION is a term denoting a watery preparation of vegetable matter. By infusion in this work I mean simply steeping the vegetable, in water heated, before applied, after the manner of steeping common table tea.

Infusion of Chamomile. Take of chamomile flowers two drachms, water one pound, steep for a few hours and strain.

Infusion of Senna. Take of senna leaves an ounce and a half, with or without ginger, half an ounce; boiling water one pint, macerate, or steep in a closed vessel for an hour. In like manner is prepared infusions of columbo, peruvian bark, cinnamon, &c. The dose is generally as much as the stomach can bear, unless otherwise directed.

Mucilages, are solutions of gummy matter in water, this is either of the gums themselves, or vegetables containing gummy matter is macerated in water. The water used should be hot. They are used as vehicles for other medicines, to suspend powders in liquors, to diffuse oils or resinous matter in water, to give tenacity to pills, and are given in large quantities to sheathe the stomach and bowels against acrimonious humors, &c.

DECOCTIONS.

By decoction I mean the boiling of the plants, or substance used, in water.

Decoction of Peruvian Bark. Take an ounce of the powdered bark and boil in a pint of water ten or fifteen minutes : strain while warm. In this manner prepare any decoction, and where much strength of the vegetable is desired in little quantity of water, boil it away as much as is wished. But the active matter is liable to be impaired by long boiling.

VOLATILE OILS.

RULE : A sufficient quantity of water is to be thrown on the substance to be acted on, so as to prevent the volatile spirit from flying off during distillation. After maceration for a proper length of time, distill, and separate the oil from the water ; as it may be lighter than the water and swim on the surface, or heavier and sink to the bottom. According to this method are prepared oil of *Anise, Wormweed,, Pennyroyal, Lavender, Peppermint, Origanum, Rosemary, Sassafras, Spearmint, &c. &c.*

MINERAL WATERS.

Saline Mineral waters are usually aperient, and much more so than might be supposed from the extent of their saline impregnation. They are general used in diseases where it is of advantage to strengthen the digestive organs, or where advantage is desired from moderate and continued evacuations. Hence, the benefit derived from them in indigestion, chlorosis, scrofula, &c. &c. Sea water is a saline mineral water.

Chalybeate Mineral Waters owe their medicinal properties to an impregnation of *Iron*. They act as tonics increasing the strength of the system, raising the force of the evacuation, giving tone to the digestive organs, augmenting muscular vigor, and promoting the excretions. They are employed in almost all cases of chronic debility.

Sulphureous Mineral Waters. These owe their powers to an impregnation of sulphureted hydrogen, and are readily

known by their sulphurous smell. They are employed in diseases affecting the skin, the digestive organs, &c., as the above.

Carbonated Mineral Waters. These contain carbonic acid gas, they sparkle when drawn from the spring, and have a taste pungent, and acidulous, which they lose when exposed to the air. They are grateful from their pungency, sit light on the stomach, and in large dose produce exhilaration of spirits; and are resorted to for relief in all chronic complaints, being similar to the other waters in medicinal properties.

THE GASES,

HAVE been employed in medical practice, they are of but little consequence.

Electricity possesses stimulating power, but is very properly laid aside by men of sense, as being more an instrument of amusement, than a means of medical efficacy.

RECEIPTS FOR COMPOUNDING MEDICINES.

A TABLE of medicines for family use, with their doses and qualities.

MEDICINES.	DOSE FOR ADULT.	QUALITIES.
Solution of Arsenic,	five to twelve drops,	Tonic.
Wine of Antimony,	three to four tea-spoonfuls,	Emetic.
— as a diaphoretic,	twenty to sixty drops,	Diaphoretic.
Alum,	five to fifteen grains,	Astringent.
Aloes,	five to twenty grains,	Cathartic.
Balsam Copaiva,	twenty to eighty drops,	Corroborant.
Balsam Turlington,	do. do.	Do.
Bitters,	one to three drachms,	Stomachic.
Peruvian bark,	a table-spoonful,	Tonic & antiseptic.
Calomel,	eight to twenty-five grains,	Active physic.
Camphor,	four to twenty grains,	Stimulant.
Cream of Tartar.	one to two table-spoonfuls,	Cooling aperient.
Caustic vol. alkali li- quor,	half a tea-spoonful	Stimulant.
Corrosive sublimate,	one sixteenth of a grain.	Anti-venereal.
Columbo,	ten to sixty grains,	Stomachic & tonic.
Prepared chalk,	twenty-five to fifty grains,	Absorbent.
Camomile flowers,	table-spoonful decoction,	Stom. & anti-septic.
Castile soap,	twenty to forty grains,	Attendant & detergent
Castor oil,	table-spoonful	Purgative.
Elixir vitriol,	fifteen to twenty-five drachms,	Tonic.
Ether,	from half to a tea-spoonful,	Stimulant.
Ginger,	five to twenty-five grains,	Aromatic.
Gamboge,	six to twelve grains,	Purgative.
Gum Arabic,	table-spoonful, solution,	Obtunding, mucilage.
Spirit, Hartshorn,	half to a tea-spoonful,	Stimulant.
Honey,	two tea-spoonfuls,	Pectoral.
Ipecacuanha,	fifteen to twenty-five grains,	Emetic.
Jalap,	fifteen to thirty grains,	Cathartic.
Lunar caustic,	one sixth to one third grain,	Stimulant.
Laudanum,	twenty to sixty drops	Anodyne.
Magnesia,	one tea-spoonful,	Absorbent.
Manna,	one to two ounces,	Mild laxative.
Nitre,	ten to thirty grains.	Febrifuge & diuretic.
Nitric acid,	ten to thirty drops,	Tonic & antiscorbutic,
Olive oil,	half tea-spoonful,	Loosening.
Opium,	one to three grains,	Anodyne & antiseptic.
Simple ointment,	to sores,	Cooling & healing.
Goulard's cerate.	do.	do. do.
Mercurial ointment,	do.	Discentient.
Basilican ointment,	used externally,	Digestive.
Paregoric elixir,	one to three tea-spoonfuls,	Anodyne & pectoral.
Pink root,	strong decoction,	Vermifuge, worm, me.
Powdered rhubarb,	fifteen to fifty grains.	Cathartic.
Rust of steel.	five to twenty-five grains,	Tonic.
Red precipitate,	in ointment,	Escharotic.

MEDICINES.	DOSE FOR ADULT.	QUALITIES.
Sugar of lead,	one to six grains,	Astringent & tonic.
Spanish flies,	externally, tinct. drops 2 to 12,	Blistering, diuretic,
Salts,	four to six drachms,	Cathartic.
Salt of tartar,	ten to thirty grains,	Absorb. & febrifuge.
Spirits of turpentine,	twenty drops, to tea-spoonful,	Stimulant.
Vol. salt. of ammonia,	five to twenty grains,	do.
Crude,	externally,	Discutient, scattering.
Senna,	strong infusion,	Physic.
Spirits of lavender,	thirty to sixty drops,	Cordial.
Flour of sulphur,	two to eight drachms.	Aperient.
Tamarinds,	as much as you please,	Cooling & laxative.
Tartar emetic,	three to ten grains,	Emetic.
Tincture of iron,	eight to sixteen drops,	Tonic.
— bark,	two to six drachms,	do.
— rhubarb,	one to two ounces,	Cathartic & stomachi.
— fox glove,	ten to sixty drops,	Diuretic.
— cantharides,	ten to fifteen drops,	Stimulant.
— columbo,	one to four drachms,	Tonic.
— myrrh,	twenty drops,	Detergent.
} White vitriol,	five to fifteen grains,	Emetic.
} As a tonic,	two to five grains,	Tonic.
Blue vitriol,	externally,	Escharotic.
Virginia snake root,	ten to twenty grains,	Stimulant & stomachi.

N. B.—A drachm of any substance that is near the weight of water, will fill a common tea-spoon level full. Four tea spoonfuls (four drachms,) make a table-spoonful (or one half of an ounce,); two table-spoonful make an ounce, and so on. On the same principle one third of a tea-spoonful will be one scruple, or twenty grains in weight.

The doses mentioned in this book are generally intended for adults.

Children of 14 years may take two-thirds of a dose.

"	7 do	"	one-half	"
"	5 do	"	one-third	"
"	3 do	"	one-fourth	"
"	28 months	"	one-fifth	"
"	14 do	"	one-eighth	"
"	7 do	"	one-twelfth	"
"	2 do	"	one-fifteenth	"
"	1 do	"	one-twentieth	"
	under do	"	one-twenty-fourth	"

PILLS.

1. *Cathartic, or bilious pills.* Take of aloes, two ounces; calomel, two drachms; gamboge, one drachm; castile, or bar soap, half an ounce; water, or molasses, a sufficient quantity. Pulverize and sift the aloes and gamboge, then

mix the ingredients, by pounding them together, to a proper consistence. Make them into common sized pills, and take 3 or 4 for a dose. A piece of crape stretched on a stick bent so as to form a circle makes a convenient sieve.

2. Another kind of bilious pills is made thus : Take one part of aloes, one part of gamboge, and two parts of jalap, adding a little soap ; and mix with molasses, as usual.

3. *Laxative pills.* Take ten grains of pulverized cinnamon ; one drachm of aloes ; one drachm of castile soap, add one or two drops of molasses, and make into 32 pills. Dose, 2 at bed time.

4. *Pills of aloes and assafœtida.* Take equal parts of pulverized aloes, assafœtida, and soap. Add a sufficient quantity of the mucilage of gum arabic, or molasses, make them into common sized pills, and take them one or two twice a day for dyspepsia and costiveness.

5. *Anti-hysteric pills.* Take equal parts of pulverized assafœtida, galbanum, and myrrh ; add a little of the tincture of assafœtida, beat them into a mass with molasses or syrup, make into pills, and take one, two, or three, every night or oftener.

6. *Hull's colic pills.* Take of cinnamon, cloves, mace, myrrh, saffron, ginger and castile soap, of each one drachm ; socotorine, aloes, one drachm ; and essence of peppermint sufficient to moisten it. Make common sized pills, and take them till they operate.

7. *Dr. Fuller's anti-relax pills.* Take ten grains of pulverized opium ; twenty of ipecac, and twenty of calomel ; add molasses until it will pill, and make it into 160 pills. Dose, for children, one pill every hour or oftener, until the relax is checked.

8. *Mercurial, or blue pills.* Take of purified mercury or quicksilver half an ounce ; confection of roses (honey will answer) half an ounce ; powdered liquorice, two drachms or 1-4 of an ounce. Rub the mercury with the confection until the globules disappear ; then add the liquorice, beat into a mass, and divide immediately into two hundred and forty pills, of the common size. Take one, night and morning until the gums begin to grow sore.

9. *Half grain pills of calomel, or alterative pills.* Take twenty-five grains of calomel ; starch or magnesia the

same quantity ; mucilage of gum arabic, a sufficient quantity ; mix, and divide into fifty pills. Dose, two at night to produce an alteration in the system ; increase to three or four to produce ptyalism, or sore mouth.

10. *Strengthening female pills.* Take carbonate of iron (rust of iron) one ounce ; castile soap, and pulverized gum myrrh, of each two drachms. Beat them into a mass with molasses or syrup, make common sized pills, and take 2 or 3 twice a day.

POWDERS.

11. *Picra, (Hiera Picra.)* Take of aloes one pound ; ginger, half a pound ; winter bark, one fourth of a pound. Pulverize each ingredient separately, then mix them together, and one ounce of the mixture may be put to a pint of spirits. Dose, a table spoonful. Good laxative physic.

12. *Gum powder.* Take pulverized gum tragacanth, gum arabic, and starch, of each one ounce and a half ; loaf sugar three ounces. Grind to a powder. Good in coughs, hectic, stoppage of urine, old fluxes, &c. Dose, a teaspoonful or more.

13. *Sweating powder, or Dover's powder.* Take ipecac, and dry opium, of each, one part ; sulphate of potash eight part, grind the sulphate of potash and opium together, sift, and then add the ipecac. Dose from 5 to 20 grains, once in 2 hours, as the stomach will bear it without puking. This is a powerful sudorific, and is good in all cases where sweating is necessary.

14. *Aromatic powder.* Take equal parts of cinnamon, cardamon seeds, and ginger, rub them together in a mortar to a fine powder, and keep it in a well stopped bottle. This makes an agreeable medicine, and may be taken to warm the stomach, or used to cover the bad taste of other medicines. Dose, from ten grains to a scruple, or more.

15. *Snuff powder.* Take of the leaves of asarabacca, three parts ; the leaves of marjoram and flowers of lavender, of each one part. Pulverize them together. This kind of snuff is excellent in obstinate headaches, and also for inflamed eyes that resist other modes of cure. Five or six grains

taken at night will produce powerful sneezing the next day. Avoid taking cold.

16. *Compound powder of chalk.* Take four ounces of chalk ; half a drachm of nutmeg ; and a drachm and half of cinnamon. Pulverize, and mix. For weakness and acidity in stomach and bowels. Dose half a teaspoonful. By adding 4 scruples of pulverized opium to every six ounces and a half of the above powder, you will have what is called *the compound powder of chalk with opium*, which is still more effectual than the preceding powder in restraining diarrhæa. One fourth of a teaspoonful, or less, will probably be sufficient, once an hour or two.

17. *Compound powder of Kino.* Take fifteen drachms of kino ; half an ounce of cinnamon ; and one drachm of opium. Pulverize separately, and mix. It is an excellent anodyne and astringent. To check profuse evacuations of any kind—in small doses.

18. *Compound saline powder.* Take table salt, (muriate of soda,) epsom salt, (sulphate of magnesia,) of each, four parts ; sulphate of potash, three parts. Dry with a gentle heat, reduce them to powder separately, then mix, and keep it in a well corked phial. Good in costiveness—Dose, a teaspoonful in half a pint of water before breakfast.

PLASTERS.

19. *Common plaster, or Diachylon.* Take three quarts of sweet oil, (olive oil,) two pounds and a half of litharge reduced to fine powder, and two quarts or more of water. Boil them together over a gentle fire, continually stirring it, and as the water evaporates, hot water must be added, from time to time, so as constantly to keep about 2 quarts of water in the vessel. The use of the water is to prevent the plaster from burning. The addition of *cold* water after the plaster becomes hot, would cause a dangerous explosion, and if the plaster be *extremely hot*, the same would also take place by adding *hot* water. It is safer therefore to remove it from the fire, and let it cool a little, before adding the water. After boiling it about three hours, a little of the plaster may be taken out and put into cold water to try if it be of a proper consistence ; when that is the case, the whole may be suffered

to cool gradually. Press out the water with the hands. This plaster is frequently applied to excoriations of the skin and slight flesh wounds, but its principal use is to serve as a basis for other plasters.

20. *Strengthening plaster.* Take twenty four parts of the common or diachylon plaster ; six parts of burgundy pitch ; three parts of yellow wax ; three parts of sweet oil ; and eight parts of red oxyd of iron. Grind the red oxyd of iron with the oil, and then add to it the other ingredients, previously melted.

21. *Adhesive plaster, or Sticking plaster.* Take five parts of common plaster, and one part of burgundy pitch. Melt them together, and the plaster is made. Another method of making it, is to take two parts, or half a pound, of common plaster ; and one part, or a quarter of a pound, of burgundy pitch. Melt them together as before. This is a very important plaster ; it is used instead of the surgeon's needle for dressing flesh wounds.

22. *Anodyne plaster.* Melt an ounce of adhesive plaster, and when it is cooling, mix with it a drachm of powdered opium, and the same quantity of campher previously rubbed up with a little sweet oil. This plaster generally gives ease in acute pains, especially of the nervous kind.

23. *Blistering plaster.* Take equal weights of mutton suet, yellow wax, burgundy pitch, and Spanish flies, (cantharides.) Or the American potatoe fly may be used. Mix the flies, reduced to fine powder, with the other ingredients, previously melted and removed from the fire. Another method, is to take six ounces Venice turpentine; two ounces of yellow wax ; one ounce of pulverized mustard, and three ounces of pulverized flies. Melt the wax, and while it is warm add the turpentine, taking care not to evaporate it by too much heat. After the turpentine and wax are sufficiently mixed, sprinkle in the powders, continually stirring until it becomes cold.

24. *Gum plaster.* Take of common plaster four pounds ; gum ammoniac and galbanum, strained, of each half a pound. Melt them together, and add, of Venice turpentine, six ounces. This plaster is used for discussing or driving away indolent tumors.

25. *Stomach plaster.* Take of gum plaster, an ounce and a half ; pulverized pepper, one ounce. Melt the plaster,

and mix with it the oil; then sprinkle in the pepper, stir it well, and the plaster is made. Spread an ounce or two of this upon soft leather, and apply to the stomach.

CERATES, LINIMENTS AND OINTMENTS.

26. *Simple cerate, or salve.* Take six parts of olive oil; three parts of white wax, and one part of spermaceti. Melt them together. This is used for dressing sores, ulcers, &c.

27. *Goulard's cerate.* Take of water of acetated litharge, two ounces and a half; yellow wax, four ounces; olive oil nine ounces; camphor, half a drachm. Rub the camphor with a little of the oil. Melt the wax with the remaining oil, and as soon as the mixture begins to thicken, pour in by degrees the water of acetated litharge, and stir constantly until it be cold; then mix in the camphor previously rubbed with oil. The recommendation of Mr. Goulard has given fame to this cerate. It is applied for the purpose of abating the inflammation of swellings, and is a good application for cleansing and healing unhealthy sores and ulcers.

28. *Simple liniment.* Take of olive oil four parts; white wax, one part. Melt the wax in the oil by applying gentle heat, and then shake the mixture continually until it hardens. This may be used for softening the skin, healing chops, &c.

29. *Lime water liniment.* Take equal parts of lime water and olive, or flaxseed oil. Mix by shaking in a phial. It is a good application to scalds and burns—spread it on the part with a feather.

30. *Liniment of camphor, or Camphorated oil.* Dissolve half an ounce of camphor in two ounces of sweet oil.

31. *Volatile liniment.* Mix equal parts of aqua ammonia and sweet oil in a phial—shake them together, and keep the phial well corked.

32. *Turpentine liniment.* Take eight ounces of land; pine-resin five ounces; yellow wax, two ounces. Melt, stir them together, and then add half a pint of oil of turpentine. Either of the three last mentioned liniments may be rubbed on parts affected with rheumatism, sprains, numbness, or palsy.

33. *Ointment of nitrous acid.* Gradually add six

drachms of nitrous acid to a pound of melted lard, and diligently beat the mixture as it cools. In affections of the skin, this is a good substitute for the ointment of nitrate of mercury.

34. *Turner's healing cerate.* Take half a pound of calamine, (lapis calaminaris;) half a pound of yellow (bees') wax; and one pint of olive or sweet oil. Melt the wax with the oil; and as soon as the mixture, exposed to the air, begins to thicken, mix it with the calamine, and stir the cerate until it be cold. It is applied to any kind of healthy ulcers, or cutaneous excoriations, (where the skin is rubbed off,) in order to assist in forming new skin.

35. *Ointment of white hellebore.* Take of white hellebore, one ounce; hog's lard, four ounces; essence of lemon, half a scruple. Mix, and make them into an ointment. For cutaneous diseases.

36. *Strong unguentum, or mercurial ointment.* Take purified mercury or quicksilver three parts; lard, three parts; suet, one part. Grind the mercury in small parcels with a sufficient quantity of thick Venice turpentine, or with melted adhesive plaster,* until the globules disappear, then add the lard and suet.

37. *Mild unguentum.* Mix one part of strong unguentum with two parts of lard. These two ointments are applied to the skin in order to introduce mercury into the system instead of taking it internally, and also to cure the itch, and other eruptions.

38. *Citric, citrine, or yellow ointment.* (Unguentum Hydrargyri nitratis.) Take purified mercury by weight, one pint; nitric acid, two parts; olive oil, nine parts; lard, three parts. Dissolve the mercury in the acid, and to that add the oil and lard previously melted together, and just beginning to grow stiff. Stir them briskly together in a glass mortar, so as to form an ointment.

29. *Milder yellow ointment,* is made in the same way with three times the quantity of oil and lard. Yellow ointment has the very best effect in all inflammations of the eyes, with disorders of the scalp or face; in herpes, tinea capitis, and other obstinate cutaneous affections.

* Half a drachm of carbonate of Magnesia, with an ounce or two of lard to one pound of mercury, may be used by those of who prefer it, instead of the plaster or turpentine.

40. *Red precipitate ointment.* Mix one part of red precipitate with eight parts of lard. This is used for the same purpose as mercurial ointment.

41. *Tar ointment.* Melt two parts of yellow wax with five parts of tar, and strain through linen. Used in tinea capitis, and other affections of the skin.

42. *Sulphur ointment.* Mix one part of sulphur with four parts of lard, and to every pound of this mixture add half a drachm of lavender oil, or oil of lemons. Certain cure for the itch, safer than mercury.

43. *Basilicon ointment.* Rosin and beeswax, each, one pound; lard, one pound and a half. Melt them together by a slow fire, and strain the mixture while hot. Used to promote the suppuration, or discharge of matter, of open sores.

TINCTURES.

44. *Tincture of opium, or laudanum.* Add two ounces of dry opium pulverized, to one quart of proof spirit. Let it stand seven days, frequently shaking, and then strain. Common dose, from 15 to 25 drops.

45. *Paregoric.* Take opium, and flowers of Benzoin, of each, half a drachm; camphor, two scruples; oil of anise, sixty drops; proof spirit, one quart. Mix together, let it stand (digest) ten days, and strain. A little sugar and liquorice may also be added with the other ingredients. Dose, the same as laudanum, or more.

46. *Tincture of aloes.* Mix half an ounce of powdered socotorine aloes, and an ounce and a half of liquorice ball, with four ounces of alcohol, and one pound of water. Digest seven days. Drastic cathartic—Dose, from a teaspoonful to an ounce.

47. *Tincture of rhubarb.* Rhubarb root sliced, two ounces; cardamom seeds, bruised one ounce and a half; saffron, two drachms; proof spirit, one quart. Digest 14 days, and strain. Laxative—Dose, from a tea to a table spoonful.

48. *Tincture of myrrh.* Add three ounces of pulverized gum myrrh to twenty ounces of alcohol, and ten ounces of water. Digest seven days, and strain through paper. Externally, for cleansing foul ulcers—internally, in female ob-

structions. Dose, from 15 to 40 drops. (Any tincture may be used without straining.)

49. *Tincture of assafœdita.* Take four ounces of assafœdita ; one quart of alcohol, and half a pint of water. Triturate or grind the assafœdita with the water ; then add the alcohol, digest ten days, and strain. This may be given instead of assafœdita itself—Dose, from ten to sixty drops.

50. *Tincture of camphor, or camphorated spirits.* Add one, two, or three ounces of camphor to one pound or pint of alcohol. Used externally in rheumatic pains, numbness, &c.

51. *Tincture of kino.* Add two ounces of powdered gum kino to a pint and a half of proof spirits. Digest seven days, and strain—Astringent—in fluxes. Dose, 10 to 50 drops.

52. *Compound tincture of peruvian bark.* Two ounces of peruvian bark ; an ounce and a half of orange peel ; three drachms Virginia snake root, bruised ; one drachm saffron ; two scruples cochineal ; a pint and a half proof spirits. Mix them, digest ten days and strain. Dose, two or three drachms (teaspoonfuls) to strengthen the stomach. For curing intermittents (agues) increase the dose.

53. *Compound tincture of cinnamon, or aromatic tincture.* Cinnamon, bruised, six drachms ; lesser cardamon seeds without the capsules, one drachm ; long pepper and ginger in powder, of each two drachms ; proof spirit, one quart. Mix, digest seven days, and strain. Stimulating, and carminative. Good to settle the stomach—Dose, one to two teaspoonfuls in wine or water.

54. *Tincture of gum myrrh and pepper.* Cayenne pepper and gum myrrh, of each, one ounce ; proof spirit, one quart. Digest ten days, and strain. Powerful stimulant—may be used in low typhus. Dose, from 20 to 30 drops.

55. *Tincture of guaiac, or guaiacum.* Add one pound of gum guaiac to two pints and a half of alcohol. Let it stand and digest ten days. Stimulant, and sudorific—Good in rheumatism, gout, &c. Dose half an ounce (tablespoonful) with 2 ounces of water. It is also good in painful and obstructed courses, and for this, an ounce of carbonate of soda, and 4 or 5 ounces of allspice may be added. Dose, a teaspoonful in wine before eating. Discontinue during the time of being regular—begin again immediately after.

56. *Tincture of black Hellebore.* Four ounces black hellebore root; half a drachm pulverized cochineal; two pints and a half proof spirits. Digest seven days. Dose, a tea-spoonful twice a day in warm water. In sanguine constitutions, where chalybeates are hurtful, it excites the proper evacuations of women, and removes the ill consequences of their suppression.

57. *Tincture of Colchicum.* Colchicum root, two ounces; proof spirits, four ounces. Used in gout. Dose, a table-spoonful.

58. *Tincture of the muriate of iron.* Take carbonate (rust) of iron half a pound; muriatic acid, one pint; alcohol three pints. Pour the acid on the iron in a glass vessel; stir it frequently for three days; set it by for the dregs to subside; then pour off the clear liquor, and when cold, add the alcohol. Excellent chalybeate, in female debilities. Dose, ten or twenty drops twice a day.

59. *Elixir of Vitriol.* Gradually mix three ounces of sulphuric acid (oil of vitriol) with one pint of the aromatic tincture. After settling, filter through paper in a glass funnel. Good tonic for the stomach. Dose, ten or fifteen drops.

60. *Tincture, or essence of peppermint.* Add two drachms oil of peppermint to one pint of alcohol. Cordial, and stimulating, twenty to thirty drops.

61. *Spirit of mindererus.* Take carbonate of ammonia, any quantity, and pour vinegar on it until the effervescence ceases. Promotes perspiration and urine. Dose, a table-spoonful in a cup of warm gruel every hour, in bed, until it has the effect.

62. *Tincture of American hellebore.* Take American hellebore (itchweed,) bruised, eight ounces; diluted alcohol or proof spirits, two pints and a half. Digest for ten days, and filter. For gout, rheumatism, &c. Begin with a few drops, and increase as the stomach will bear it.

SYRUPS.

63. *Simple syrup.* Mix fifteen parts of sugar with eight parts of water. Dissolve by gentle heat, boil a little and

remove the scum. Used to cover the taste of other medicines, or for making pills.

64. *Syrup of vinegar.* Boil seven parts of sugar with five parts of purified vinegar. This is a pleasant syrup, and on account of its cheapness is often preferred to lemon syrup.

65. *Orange syrup.* Fresh outer rind of Seville oranges, three ounces; boiling water one pound and a half; refined sugar, three pounds. Macerate or steep the rind in the water for twelve hours; then, after straining, add the sugar in powder, and apply gentle heat, so as to form a syrup.

66. *Lemon syrup.* Take of juice of lemons, strained, three parts; sugar, five parts. Dissolve the sugar in the juice so as to make a syrup. All these are pleasant, cooling syrups, for quenching thirst, abating heat, &c. and may be used in fevers.

67. *Syrup of colchicum or meadow saffron.* Take fresh meadow saffron cut in slices, one ounce; purified vinegar, one pint; sugar twenty-six ounces. Let the colchicum remain in the vinegar for two days, occasionally shaking the vessel; then strain the infusion with gentle expression. To the strained infusion add the sugar; and boil a little so as to form a syrup. This is the best preparation of colchicum. May be used in gout, rheumatism, dropsy, &c. Dose, from a drachm to an ounce, or more.

68. *Syrup of sarsaparilla.* Take of sarsaparilla, sliced, two pounds; roses, senna, anise, and liquorice stick, sliced, of each two ounces; warm water twelve pints. Infuse the sarsaparilla in the water for twenty-four hours; then boil for a quarter of an hour, and strain by strong compression; boil the sarsaparilla again in ten pints of water till the half of it is evaporated; then strain, mix the two liquors, and add the other ingredients. Then boil the whole until half is evaporated, strain and add honey and sugar, of each, two pounds. Good in cases of debility.

69. *Syrup of roses.* Fresh petals of the damask rose, one part; boiling water, four parts; double refined sugar, three parts. Macerate the roses in the water for the night; then strain, add the sugar, and boil to a syrup. An agreeable and mild purgative for children in the dose of half a spoonful, or more. It may also be given to adults for costiveness.

WINES.

70. *Wine of colchicum, or meadow saffron.* Fresh colchicum root two ounces ; Spanish white wine two pounds. Infuse for ten days ; filter, and add rectified spirits of wine two ounces. Used in gout, twenty drops at night.

71. *Wine of colchicum seeds.* Infuse two ounces of the seeds in one pound or pint of spanish white wine for ten days. Dose, from one to three drachms, (table spoonfuls) twice a day, in rheumatism.

72. *Wine of antimony, or antimonial wine.* Emetic tartar, two scruples ; boiling, distilled water, four ounces ; wine, six ounces. Dissolve the emetic tartar in the boiling water, and then add the wine. Emetic—dose from three to four drachms.

73. *Wine of ipecacuanha.* Take of the root of ipecac, bruised, two ounces ; spanish white wine, two pints. Digest for ten days, and strain. A mild and safe emetic—common dose, one ounce, (two table-spoonfuls.)

74. *Wine of aloes, or aloetic wine.* Four ounces of socotorine aloes ; two ounces of canella alba ; four pounds of Spanish white wine. Powder the aloes and canella alba separately ; then mix, and pour on the wine. Digest fourteen days with frequent agitation, and filter or strain. Cathartic—dose from one to two ounces. In smaller doses, it obviates costiveness and occasions a lax habit of much longer continuance than common cathartics.

75. *Wine of rhubarb.* Rhubarb, two ounces ; canella alba, one drachm ; diluted alcohol or proof spirits two ounces ; spanish white wine, fifteen ounces. Macerate seven days, and strain. This is a fine laxative ; it evacuates the offending matter, and also strengthens the stomach and bowels. Dose, from one half, to three or four spoonfuls, or more.

76. *Compound wine of gentian.* Gentian root, half an ounce ; peruvian bark, one ounce ; orange peel dried, two drachms ; canella alba, one drachm ; diluted alcohol, or spirits, four ounces ; Spanish white wine, two pounds and a half. First pour the spirit on the root and bark, cut and bruised, and after twenty-four hours add the wine ; then macerate for

seven days, and strain. This makes a good stomach bitter. Dose, a wine-glassful three times a day.

MIXTURES, SOLUTIONS, &c.

77. *Cathartic mixture.* Glauber, or epsom salts, one ounce and a half; lemon juice or sharp vinegar, one ounce; water, half a pint, and sweeten with sugar. This is a cooling physic.

78. *Febrifuge mixture.* Salts of nitre, two drachms; lemon juice or vinegar, one ounce; water, half a pint, and sweeten with sugar. Good to reduce fever—dose, a teaspoonful or more every hour or two.

79. *Anodyne sudorific, or sweating drops.* Add ten drops of laudanum and twenty of antimonial wine, to a cup of sweetened tea.

80 *Saturated solution of arsenic.* Take of arsenic in powder, one drachm; water, half a pint: boil it for half an hour in a Florence flask or tin sauce-pan; let it stand to subside, and when cold, filter it through paper. To two ounces of this solution add half an ounce of spirit of lavender—dose, from five, to twelve drops, two or three times a days. It is a powerful tonic—may be used in ague, and all cases of debility.

81 *Solution of sal ammoniac.* Dissolve half an ounce of sal ammoniac in one pint and a half of cold water, and then add half a pint of vinegar. Used as a wash for external inflammations.

82 *Gravel mixture.* Mix two parts of quick lime, with one of pot-ashes; and suffer them to stand until the lixivium be formed, which must be carefully filtered through paper, before it be used. If the solution does not happen readily, a small quantity of water may be added to the mixture. This is a powerful medicine for the gravel. Commence with small doses (a few drops) mixed with mucilage of gum arabic, increase as the stomach will bear, and continue it for a long time.

83 *Astringent gargle for sore mouth.* Half a pint of oak bark tea; one ounce of honey, and half a drachm of alum; mix them.

84. *Itch lotion.* Corrosive sublimate, one drachm; sal ammoniac, two drachms; water, one pint and a half. Dissolve them, and use for a wash.

85. *Stimulating glyster.* Common salt, and brown sugar, of each one ounce; olive or castor oil, two ounces; warm water half a pint, mix them.

86. *Emollient glyster.* Take flaxseed tea, and milk, of each six ounces, mix them.

87. *Another.* Take warm water, half a pint; molasses ounces, mix them.

88. *Another.* Sweet oil, and brown sugar, of each, two ounces, mix them. If one drachm or tea-spoonful of laudanum be added to either of the emollient glysters, it forms the nodyne glyster.

89. *Tar water.* Pour a gallon of water on two pounds of tar, and stir them strongly together with a wooden rod; when they have stood to settle two or three days, pour off the water for use. It raises the pulse, increases the secretions, and is gently laxative,—dose, a gill, or more, three or four times a day, on an empty stomach.

90. *Slyptic water.* Blue vitriol and alum, of each, one ounce and a half; water, one pint,—dissolve by boiling, then filter the liquor, and add a drachm of the oil of vitriol. Used to stop bleeding at the nose, and other hemorrhages, by wetting a rag with it, and applying to the part.

PROMISCUOUS.

91. *Fomentation of poppies.* Bruise four ounces of dried poppy heads, and then boil them in six pints of water, until a quart only remains. This is to be applied to inflamed parts, where there is much pain.

92. *Cooling lotion.* Dissolve an ounce of muriate of ammonia in four ounces of common vinegar, and add ten ounces of water; to be applied with or without a cloth, to inflamed surfaces.

93. *Liniment for scalds and burns.* Take of linseed or olive oil, lime water, each equal parts, or three ounces; mix by shaking them together. This is an excellent application to burns in any stage.

94. *Cataplasm, or poultice for ulcers.* Boil fresh carrots until they can be beaten up into a smooth pulp. This cataplasm is efficacious in cancers, as well as other ulcers.

95. *Lotion for old ulcers.* Mix two drachms of muriatic acid (spirit of salt,) with a pint of water. This cleanses and heals the ulcers.

96. *Charcoal poultice.* To half a pound of yeast, add two ounces of fresh burnt charcoal, finely powdered and sifted. Mix the whole well together and apply it to foul ulcers and venereal sores.

97. *Cure for corns.* Rub together in a mortar two ounces of powder of savin leaves; half an ounce of verdigris, and half an ounce of red precipitate. Put some of this powder in a rag and apply it to the corn at bed time.

98. *To stop bleeding* after extracting teeth. Take a small cork, wet a dossil of lint in a solution of sugar of lead, put it on the end of the cork, and push the cork into the place from which the tooth was taken, pressing it in firmly and keeping it there until the bleeding has ceased.

99. *Eye waters, or collyria.* Take of extract of lead ten drops, rose water six ounces; mix and wash the eyes night and morning. Or, take of opium ten grains, camphor six grains, boiling water twelve ounces; rub the opium and camphor with the boiling water, and strain, and wash the eyes frequently.

100. Or, take of white vitriol, half a drachm; spirits of camphor, one drachm; warm water, two ounces; rose water four ounces: dissolve the vitriol in the water, and add spirit of camphor, and rose water. This is useful in chronic inflammation of the eyes, generally called weak eyes.

101. Dr. Radcliffe's cough mixture. Mix together four drachms of syrup of squills; four drachms of paregoric; and the same of syrup of poppies. Take a tea-spoonful in warm water or tea, as occasion may require.

102. *For common use.* Oil of almonds, six drachms; milk of almonds, five ounces; rose water, or any syrup; gum arabic, and loaf sugar, each two drachms; mixed well together, and two table-spoonfuls may be taken four times a day.

103. *For diarrhea or looseness.* Take of powdered rhu-

barb, ten grains; powdered chalk, with opium, one scruple; make into four papers, take one night and morning.

104. *If the diarrhea* is obstinate, take bark in powder, two ounces; powder of chalk with opium, fifteen grains: take this quantity four times a day. First a cathartic must be given of fifteen grains rhubarb.

105. *Cure for piles.* Take of galls, in powders, two drachms; hogs lard, one ounce; make into an ointment, to be applied by means of lint: take at the same time, quassia, raspings, two drachms; boiling water, one pint: let it remain three hours, strain and add aromatic confection, one drachm; ginger in powder two scruples: take of this, two table-spoonfuls twice a day. This has done wonders in this complaint.

106. *Remedy for gout.* Take of rhubarb powdered, gum guaiac, nitre, flowers of sulphur, each one ounce, molasses one pound; mix well together, take one tea-spoonful twice a day.

107. *Gout cordial.* Take of cardamom seeds, husked and bruised; caraway seeds, bruised, each two ounces; meadow saffron, half an ounce; Turkey rhubarb, thinly sliced, one ounce; gentian root, three fourths of an ounce, infuse in a quart bottle of good brandy, one week; take a table-spoonful with the same quantity of water, every third day.

108. *Worm pills.* Calomel, one ounce; sugar, two ounces; starch, one ounce; mucilage of gum tragacanth, a sufficient quantity to make two hundred and forty-eight pills: dose, from one to two, twice a day.

109. *Hooper's pills.* Copperas, (sulphate of iron, sal martis) two ounces; pulverized aloes, canella, each one pound; mucilage of gum tragacanth, and tincture of aloes, of each a sufficient quantity; make eighteen pills of each drachm, put forty in a box: one morning and evening.

110. *Lee's Windham anti-bilious pills.* Gamboge, three pounds; aloes, two pounds; castile soap, one pound; salts of nitre (salt petre,) half a pound; extract of cow-parship, half a pound, beat in a mass with a sufficient quantity of spirits or molasses.

111. *Lee's New-London bilious pills.* Pulverized aloes, twelve ounces; pulverized scammony, six ounces; pulver-

ized gamboge, four ounces ; jalap, three ounces ; calomel, five ounces ; castile soap, one ounce ; syrup of buck-thorn, one ounce ; mucilage of gum Arabic, seven ounces ; mix, and make every two drachms into twenty-four pills.

112. *Lip salve.* Melt together two ounces of white wax : three ounces of spermaceti ; seven ounces oil of almonds, one drachm of balsam of Peru, and one ounce of alkanet root, put in a linen bag ; pour the salve in boxes or gallipots and coxer with bladder or white leather.

113. *Basilicon ointment.* Take of yellow rosin, bees wax, each one pound ; olive oil, one pint ; melt the rosin and wax with a gentle heat, then add the oil, strain while hot. This is used for all kinds of sores, and a large plaster laid over the breast will drive the milk away.

114. *Opodeldoc.* Camphor, one ounce ; oil of rosemary, one ounce ; castile soap, two ounces ; high wines, (alcohol) half a pint.

115. *Steer's opodeldoc.* Castile soap, three pounds ; high wines, three gallons ; camphor, twelve ounces ; oil of rosemary three ounces : oil of origanum, six ounces ; aqua ammonia, two pounds. Let it stand in a well stopped vessel, exposed to moderate heat a day or two. This is made solid or liquid by increasing or lessening the quantity of soap.

116. *Hill's balsam of honey.* Balsam tolu one pound ; honey one pound ; S. V. R. (this is the doctors' sign for rectified spirit of wine, alcohol, or simply high wines,) one gallon : used in coughs and colds.

117. *Balsam of horehound.* Horehound, liquorice root, each three and a half pounds ; water, sufficient quantity to strain six pints, in which steep, and to the liquor when strained, add twelve pints of brandy ; camphor, one ounce and a half ; opium, flowers of benzion, each one ounce ; honey three pounds and a half.

118. *Bateman's pectoral drops.* Castor, two ounces ; opium, oil of anise, each one ounce ; camphor, eight ounces ; proof spirit, ten pints, and pulverized valerian and cochineal, one ounce ; digest for ten days and strain.

119. *Swinton's daffy.* Jalap root, five pounds ; senna leaves, seven pounds ; anise seeds, fourteen pounds ; caraway seeds, four pounds ; brandy two gallons ; alcohol, twenty-six gallons ; water, twenty-four gallons ; let it stand in a

well stopped vessel three weeks, strain, then add molasses, twenty-eight pounds: dose, one to four table spoonful.— This is an excellent remedy in flatulent colic. It may be made in small quantities, observing the proportions. Cochineal sufficient to color.

120. *Squire's elixir.* Opium, four ounces; camphor, one ounce; cochineal, one ounce; oil foeniculi, two drachms; tincture of snake root, one pint; anise seeds, four pounds, steeped in two gallons of water; musk, six ounces; alcohol two pints.

121. *Black drop.* Half pound of opium; three pints good vinegar; one and a half ounces of nutmegs; and half an ounce of saffron; boil them to a proper thickness, add a quarter of a pound of sugar, and two spoonful of yeast, set near the fire for a week, strain, and bottle it up, adding a little sugar to each bottle.

122. *Godfrey's cordial.* Dissolve half an ounce of opium; one drachm (tea-spoonful) oil of sassafras, in two ounces of high wines; now mix four pounds of molasses with one gallon of boiling water, and when cold mix both together. This is used to soothe the pains of children, and for three shillings may be made, what will cost at the shop ten or twelve dollars.

123. *Black pectoral lozenges.* Extract of liquorice; gum arabic, each four ounces; white sugar, eight ounces: beat them all to powder, and make into a mass with water, so as to form lozenges. They are to soften acrimonious humors, and may be taken at pleasure.

124. *Oxymel of squills.* Take of clarified honey, three pounds; vinegar of squills, two pints; boil in a glazed vessel with a slow fire, to the thickness of a syrup. This is of great use in all coughs: dose, two tea-spoonfuls in tea or water,—large dose will puke.

125. *Vinegar of squills.* Squills, one pound; vinegar, six pints; spirits half a pint: macerate the squills with the vinegar, exposed to gentle heat for twenty-four hours, strain and add the spirit.

126. *Beef tea.* Cut a pound of lean beef in pieces, then put it into a gallon of water, with the under crust of bread, and a small portion of salt, boil down to two quarts, and

strain. Or, cut a piece of lean beef fine and pour on boiling water.

127. *Seidlitz powders*. Take of Rochelle salt, one dram; carbonate of soda, twenty-five grains; tartaric acid, twenty grains; dissolve the two first in a tumbler of water, then add the latter, and swallow in a hurry.

128. *Soda powders*. Soda half a drachm, in blue paper; tartaric acid, twenty-five grains, in white paper, (nearly half a tea-spoonful each,) dissolve in separate tumblers, half full of water, sweetened, pour together and drink immediately: cooling in summer.

129. *Tooth powder*. Finely powdered charcoal makes the best tooth powder.

130. *British oil*. Oil of turpentine, eight ounces; Barbadoes tar, four ounces; oil of rosemary, four drachms.

131. *Pomatum*. One pound and a half beef marrow; cinnamon, one ounce and a half; white bees wax, one pound; essence of bergamont, essence of lemon, of each one ounce and a half; oil of lavender, oil origanum, each four drachms.

132. *Styptic tincture*. Copperas, fined, one drachm; proof spirit and decoction of oak bark, each one pound. This is used to stop blood.

133. *Sponge tents*. Dip sponge in melted wax, and squeeze in a press while warm, when cold, cut into the required form. Used to dilate fistulous ulcers.

134. *Emetin*. Root of ipacac, one ounce; sulphuric ether two ounces. Let the powder be macerated with a gentle heat, for some hours, in a distilling apparatus; let the portion which remains be triturated and boiled in four ounces of alcohol, having been previously macerated in it, let the liquor filter, and let the remainder be treated with fresh portions of alcohol, as long as it takes up any thing from the root: mix all the solutions and evaporate to dryness: macerate this in cold water, (distilled water,) filter and evaporate to dryness. This extract is emetin, the active matter of ipecac.

135. *Elastic gum bougies*. Catgut dipped repeatedly in a solution of elastic gum or Indian rubber, in ether or naphtha, until a sufficient thickness of gum is deposited upon the catgut.

136. *Elastic gum catheters*. A bougie, made of fine catgut, very thickly coated with wax, bent to the proper

curve, is dipped repeatedly in ethereal solution of elastic gum, until a sufficient thickness of gum is deposited upon the bougie it is then dried perfectly in a warm room or stove; and finally boiled in water to melt out the wax and allow the catgut to be withdrawn.

137. *Gouliard's lotion.* Bitter almonds, one ounce; sugar, two ounces; distilled water, two pounds; grind together, strain, and add corrosive sublimate two scruples, previously ground with a wine-glassful of highwines. Used as a wash in the itch, and other eruptions of the skin.

138. *Issue peas.* Bees wax, one pound; iris florentine, two ounces; vermilion, four ounces; venice turpentine sufficient to mix: make into common sized peas.

139. *Tasteless ague drops.* White arsenic, one grain; water one ounce; dissolve: dose, half a tea-spoonful night and morning, sure cure for the ague.

140. Metals, in general, will unite with each other by fusion or amalgamation, and acquire new properties. For instance, brass is a compound of copper and zinc, and differs in color from both.

141. *Mosaic gold.* Melt together equal parts of copper and zinc, at the lowest temperature that will fuse the copper; stir them well to produce an intimate mixture of the metals, and add by degrees small quantities of zinc, the alloy is first yellow like brass, on adding more zinc it becomes purple, and lastly perfectly white. The whole quantity of zinc should exceed that of the copper.

142. *Queen's metal.* Melt together four and a half pounds of tin, half a pound of bismuth, half a pound of antimony, and half a pound of lead; this will make tea-pots, and other vessels, which will imitate silver, and retain their brilliancy to the last.

143. *Red tombac.* Put into a crucible five and a half pounds of copper, when melted add half a pound of zinc; these will form an alloy of a reddish color, possessing more lustre than copper, and greater durability.

144. *Common pewter.* Melt in a crucible seven pounds of tin, and when fused throw in one pound of lead, six ounces of copper, and two ounces of zinc.

145. *The best pewter,* consists of one hundred parts of tin, and seventeen of regulus of antimony.

146. *Common solder.* Put into a crucible two pounds of lead, and when melted, throw in one pound of tin: this alloy is well known by the name of solder. It is used to join leaden pipes, and when heated by a hot iron, and applied to tinned iron, with powdered rosin, it acts as a cement or solder.

147. *Hard solder.* Melt together two pounds of copper, and one pound of tin.

148. *Soft solder.* Melt together two pounds of tin, and one of lead.

149. *Printer's types.* Put into a crucible ten pounds of lead, and when it is in a state of fusion, throw in two pounds of antimony; these metals, in such proportions, form the alloy of which common printing types are made. The antimony gives a hardness to the lead, without which the type would speedily be rendered useless in a printing press. Different proportions of lead, copper, brass, and antimony, frequently constitute this metal. Every artist has his own proportions, so that the same composition cannot be obtained from different founderies; each boasts of the superiority of his own mixtures.

150. *Small types, and stereotype plates.* Melt nine pounds of lead, and throw into the crucible two pounds of antimony, and one pound of bismuth; these metals will combine, forming an alloy of a peculiar quality. This quality is expansion as it cools, it is therefore well suited for the formation of small printing types; particularly when many are cast together to form stereotype plates, as the whole of the mould is accurately filled with the alloy; consequently there can be no blemish in the letters. If a metal or alloy liable to contract in cooling were to be used, the effect would of course be very different. Proprietors of different founderies adopt different compositions.

151. *Mode of casting.* For stereotype plates, plaster of paris, of the consistence of a batter-pudding before baking, is poured over the letter-press page, and worked into the interstices of the types with a brush; it is then collected from the sides by a slip of iron or wood, so as to be smooth and compact. In about two hours the whole is hardened into a solid cake; this is removed, and a rack in an oven, where it undergoes great heat, to drive off superfluous moisture. When ready for use, the mould, according to their

size, are placed in flat cast iron pots, and are covered over by another piece of cast iron perforated at each end, to admit the metallic composition. The pots are now fasted to a crane which carries it steadily to the metallic bath, or melting pot, where they are immersed and kept for a considerable time, until all the crevices and pores of the mould are completely filled. When this is completed the pots are elevated from the bath, by working the crane, and are placed over a water trough to cool gradually; when cold, the whole is turned out of the pots, and the plaster being separated by hammering and washing, the plates are ready for use, having received the most exact and perfect impression.

152. *Metalic injections.* Melt together equal parts of bismuth, lead, and tin, with a sufficient quantity of quicksilver; this with the further addition of mercury is used to inject the vessels in many anatomical preparations, also for taking casts of many cavities of the body, as of the ear. The animal substance is destroyed by a solution of potash, and the metallic will be perfect.

153. *For cushions of electrical machinery.* Melt in a crucible two drachms of zinc, and one of tin: when fused, pour them into a cold crucible, containing five drachms of mercury; these will form an alloy (amalgam) which is to be rubbed on the cushions that press the cylinder of an electrical machine. First rub the cushion with tallow and bees wax.

154. *To plate looking-glass.* On tin-foil, fitly disposed on a flat table, mercury is to be poured, and gently rubbed with a hair's foot; it soon unites with the tin, which as the workmen say is quickened. A plate of glass is then cautiously to be slid upon the tin-leaf, in such a manner as to sweep off the redundant mercury, which has not mixed with the tin, leaden weights are then to be placed on the glass, and in a little time the quick-silvered tin-foil adheres to the glass, and the weights may be removed, two ounces of mercury will cover three square feet.

155. *Liquid foil for silvering glass globes.* Melt together one ounce of clean lead, and one ounce of fine tin, in a clean iron ladle, then add one ounce of bismuth; skim off the dross, remove the ladle from the fire, and before it sets, add ten ounces of quicksilver; now stir the whole carefully together, taking care not to breath over it, pour

this through an earthen pipe into the glass globe, which turn repeatedly round until it is silvered all over, if any remain let it run out.

156. *Another.* One part of mercury, one of tin ; or two parts of mercury, one of tin, one of lead, and one of bismuth, melted together and used as the above.

157. *Brass.* Put four and a half pounds of copper into a crucible, expose it to heat in a furnace, and when perfectly fused add one and a half pounds of zinc. The metals will combine, and form the alloy, called brass.

158. *Pinchbeck.* Put five ounces of pure copper into a crucible, when it is melted add one ounce of zinc. These metals form an alloy similar to jeweler's gold ; pour it into a mould of any shape : this is used in jewelry.

159. *Bronze.* Melt in a crucible seven pounds of copper, throw into it three pounds of zinc, and two pounds of tin, these combine and form bronze, which has been generally used in the formation of busts, medals, and statues.

160. *Imitation of platina.* Melt together eight ounces of brass and five ounces of spelter.

161. *Gilding metal.* Melt together four parts of copper, one of brass, and four ounces of tin to every pound of copper.

162. *A good dipping metal,* may be made of one pound of copper to five ounces of spelter, the copper must be tough cake, and not tile.

163. *Imitation of silver.* When copper is melted with tin, about three fourths of an ounce of tin to a pound of copper, will make a pale metal which will ring very near to silver.

164. *Solder,* for steel joints. Take of fine silver nineteen pennyweights, copper one do., and brass two do., melt under a coat of charcoal dust. This is the best solder for steel.

165. *Brass solder for iron.* Melt thin pieces of brass between the pieces that are to be joined ; if the work is very fine, cover it with pulverized borax, that it may incorporate with the brass ; then expose to the fire without touching the coals, and heat until the brass is seen to run.

166. *Silver solder for jewelers.* Melt together nineteen pennyweights of fine silver, copper one pennyweight, and brass ten pennyweights.

167. *Silver solder for plating.* Melt ten pennyweights of brass, and one ounce of pure silver together.

168. *Gold solder.* Melt together of pure gold twelve penny weights, pure silver two penny weights, and copper four penny weights.

169. *Ring gold.* Melt together Spanish copper six penny weights and twelve grains, fine silver three penny weights and sixteen grains, to one ounce five penny weights of gold coin. This alloy will sell for 3 pounds sterling, per ounce.

170. *Another.* Melt together eight ounces and a half of Spanish copper, ten pennyweights of fine silver, to one ounce of gold. This is worth forty shillings per ounce.

171. *Imitation of gold.* Melt together three ounces and a half copper, one ounce and a half of brass, and fifteen grains of pure tin.

172. *To gild glass and porcelain.* Drinking, and other glasses may be gilt by adhesive varnish, or by heat. The varnish is prepared by dissolving in boiled linseed oil an equal weight of copal or amber; this to be diluted by a proper quantity of oil of turpentine, so as to be applied as thin as possible to the parts of the vessel to be gilt. When this is done, which will be in about twenty-four hours, the glass is to be placed in a stove till it is so warm as almost to burn the fingers when handled. At this temperature the varnish will become adhesive, and a piece of leaf gold applied in the usual way will immediately stick; sweep off the superfluous portions of leaf, and when quite cold it may be burnished, interpose a piece of thin paper between the gold and the burnisher.

173. *Another.* When the varnish is not good, the gold washes off after a while, on this account it is sometimes burned in. For this purpose, grind some gold powder with borax, and in this state apply to the surface of the glass by a camels hair pencil; when quite dry, the glass is put into a stove heated to about the temperature of an annealing oven, the gum burns off (the varnish first spoken of being applied as directed in 173,) and the borax by vitrifying cements the gold with great firmness to the glass; after which it may be burnished. The gilding upon porcelain is in the like manner fixed by heat and the use of borax. It may be brought

to a low red heat. Porcelain and other wares may be platinized, silvered, tinned, and bronzed in a similar manner.

174. *To gild leather.* The leather must first be dusted over with very finely powdered resin, or mastich gum. The iron tools or stamps are now arranged on a rack before a clear fire, so as to be well heated, without becoming red hot. Each tool or stamp must be tried as to its heat, by imprinting it on the raw side of a piece of waste leather; a little practice will enable the workman to judge of the heat. The tool is now to be pressed downwards on the gold leaf, which will be indented and show the figure imprinted upon it. The letters or stamps are to be used in succession, taking care to keep the work in straight lines. By this operation the resin is matted and the gold adheres to the leather; the superfluous gold may be rubbed off by a cloth, which must be slightly greasy to save the gold wiped off. When these clothes are saturated they are sold to the refiners who burn them and recover the gold: these are sometimes worth twenty or thirty shillings.

175. *To gild writings, drawings, &c. on paper or parchment.* Mix a little size with the ink, and the letters are written as usual; when they are dry, a slight degree of stickiness is produced by breathing on them, upon which gold leaf is immediately applied, and by a little pressure may be made to adhere, the superfluous gold may be wiped off.

176. *To gild silk, satin, ivory, &c. by hydrogen gas.* Immerse a piece of white silk, satin, or ivory in a solution of nitro-muriate of gold, in the proportion of one part of the nitro-muriate, to three of distilled water. Whilst it is still wet immerse it into a jar of hydrogen gas, it will soon be covered with a coat of gold. Flowers and other ornaments may be made on silk, &c. by means of a fine camel hair pencil, and held over a vessel from which hydrogen gas escapes, and the flowers will soon shine with metallic brilliancy. In this manner silks, &c. may be gilt at a most insignificant expense, and the flowers will remain permanent.

177. *To dissolve gold in aqua regia.* Take two parts of aqua fortis, one part of muriatic acid, make the gold fine, put it into a sufficient quantity, expose to a moderate degree of heat. During the solution an effervescence takes place, and it acquires a beautiful yellow color, which increases till it has a golden, or even an orange color. When the menstruum is

saturated it is transparent. For use, to this must be added three parts of distilled water, (or rain water received from the clouds in a clean vessel will answer.)

178. *To procure hydrogen gas.* Fit a cork to the mouth of any glass vessel, through the cork put a glass tube, or tobacco pipe; in the vessel half filled with water, put iron filings, or small nails, to this add one third part of oil of vitriol, (sulphuric acid,) a small quantity at a time; and then stop the vessel with the cork before mentioned, the silk or any other subject of experiment may be put in another vessel stopped, only to admit the projecting end of the tube so that the glass may pass into the jar containing the silk. Care must be taken to keep children from these, as they would be injured by taking any of the substances used in these experiments.

179. *To gild copper, &c. by amalgam.* Immerse a bright, clean piece of copper, in a diluted solution of nitrate of mercury. Now spread the amalgam of gold, rather thinly, over the coat of mercury just given to the copper. Place the pieces in a clean oven or furnace where there is no smoke. If the heat is more than 660 degrees, the mercury will be volatilized, and the copper will be beautifully gilt. Where much gilding is done the ovens are so contrived that the mercury is again condensed, and saved for further use.

180. *To gild steel.* Pour, ethereal solution of gold into a wine glass, and dip the blade of a new penknife, lancet, or razor, into it, withdraw the instrument and allow the ether to evaporate. Or a clean rag, or dry sponge may be dipped in the solution and the blade moistened therewith. In either case it will be found to be covered with a beautiful coat of gold. It is the best way to moisten the sponge or rag, and not leave the solution in a glass, for it evaporates speedily if in an open vessel: keep the preparation in well stopped phial. This is the process by which swords and other cutlery are ornamented.

181. *Gold powder for gilding.* Put into an earthen mortar some gold leaf, with a little honey or thick gum water, and grind the mixture until the gold is reduced to extremely minute particles. When this is done a little warm water, will wash out the honey or gum, leaving the gold behind in a pulverulent state.

182. *To cover bars of copper, &c. with gold, so as to be rolled out into sheets.* Take pieces of copper or brass, of

convenient size, clean them from impurity, make their surface level, and prepare plates of pure gold, or gold mixed with a portion of alloy, of the same size of the other metal, and of suitable thickness. Place the gold, upon the other plate, and hammer and compress them both together, so that they may have their surfaces as near equal to each other as possible. Then bind them together with wire. Mix silver filings with borax, and lay them upon the edge of the plate of gold, and next to the other metal. Now place them on a fire, in a stove or furnace, and let them remain until the silver and borax melt. By this process the ingot is plated with gold, and prepared ready for rolling into sheets.

183. *Grecian gilding.* Equal parts of sal ammoniac and corrosive sublimate, are dissolved in spirit of nitre, and a solution of gold made with this menstruum. The silver is brushed over with it, which is turned black, but on exposure to a red heat it assumes the color of gold.

184. *To make amalgam of gold.* A quantity of quicksilver is put into a crucible, or iron ladle, which is lined with clay, and exposed to heat until it begins to smoke. The gold previously graunlated, and heated red hot, must be added to the quicksilver, and stirred about with an iron rod till it is perfectly dissolved. If there is any superfluous mercury it may be separated by passing it through clean soft leather; and the remaining amalgam will have the consistence of butter, and contain about three parts of mercury to one of gold.

185. *To gild by amalgamation.* The metal must be cleaned by boiling it in a very weak solution of nitric acid. Dissolve quicksilver in a bottle containing aqua fortis, leave it in the open air during the solution, so that the noxious vapor escapes into the air. Pour a little into a basin, and with a brush dipped therein, pass over the surface to be gilt, it immediately becomes white. This is called quicking. Now apply a portion of the amalgam upon one part of the metal, and spread over the surface by means of a stiff brush.

This is now put into a pan and exposed to a gentle heat. When hot, it must be taken out and worked about with a painter's brush to prevent its being uneven, and this is repeated until the mercury is disipated, the gold remaining attached to the surface. This surface is well cleaned by a wire brush.

186. *To silver by heat.* Dissolve an ounce of pure silver in aqua fortis, and precipitate it with common salt; to

which add 1-2 lb. of sal ammoniac, sandiver, and white vitriol, and 1-4 oz. corrosive sublimate. This is to be ground into a paste upon a fine stone, the substance to be silvered must be rubbed over with a sufficient quantity of the paste. and exposed to proper heat. When the silver runs it is taken from the fire and dipped into a weak solution of spirit of salt (muriatic acid) to clean it.

187. *To silver in the cold way.* Dissolve pure silver in aqua fortis, and precipitate the silver by adding common salt; make this precipitate into a paste, by adding a little more salt and cream of tartar. This is to be rubbed on the surface with a cork or sponge.

188. *To plate iron.* Place slips of thin solder between the iron and silver, with a little flux, and secure together by binding wire. It is then placed in a clear fire, and continued in it till the solder melts, it is then taken out, and on cooling is found to adhere firmly.

189. *To tin copper and brass.* Boil together six pounds of cream of tartar; four gallons of water; eight pounds of grain tin, or tin shavings. After these have boiled for a time, the substance to be tinned is put in, and the boiling continued and the tin adheres to the copper, or brass.

190. *To tin iron and other vessels.* The iron must be steeped in acid materials, and then scoured and dipped in melted tin, having been first rubbed over with a solution of sal ammoniac. The tin surface is kept from coloring by covering it with a coat of fat. Copper vessels must be well cleaned, and a sufficient quantity of tin is put therein, with sal ammoniac; and brought into fusion, and the vessel moved about.

191. *To prepare the silver tree.* Pour into a glass decanter four drachms of nitrate of silver, dissolved in a pound or more of distilled water, and set the vessel where it may not be disturbed. Now pour in four drachms of mercury, in a short time the silver will be precipitated in the most beautiful arborescent form, resembling real vegetation. This is termed the Arbor Diana.

192. *Metalic watering, or for blanc moire.* This is employed to cover ornamental cabinet work, dressing boxes, telescopes, opera glasses, &c. Sulphuric, or any acid is to be diluted with from seven to nine parts of water, then dip a

sponge or rag into it, and wash with it the surface of a sheet of tin. This will speedily exhibit an appearance of crystallization, which is the *moire*. When the *moire* has been formed, the plate is to be varnished and polished, the varnish being tinted with any glaring color, and thus the red, green, yellow, and pearl colored *moires* are manufactured.

193. *To flower silks, &c. with silver.* Dissolve nitrate of silver in distilled water, draw flowers, or any other figures upon silk, or ribands, and the silk moistened with water, be exposed to the action of hydrogen gass, (as directed in gilding with gold,) the silver will be revived, and the figures will be firmly fixed, and shine with metallic brilliancy.

194. *Welding steel, iron, and cast-steel.* Melt borax in an earthen vessel, and add one tenth as much sal ammoniac, pounded fine. When well mixed pour it out on an iron plate, and as soon as it is cold, pulverize and mix it with an equal quantity of unslaked lime. Heat the metal red hot, then strew the powder over it, the pieces of metal are again to be put in the fire, and raised to a heat, *considerable lower* than the usual welding one, when it is to be withdrawn and well beaten by a hammer, till the surfaces are perfectly united.

195. *Case hardening*, is a superficial conversion of iron into steel by cementation. It is performed on small pieces of iron, enclosed in an iron box containing burnt leather, any phlogistic substance, and exposing them for some time to a red heat. Iron thus treated is susceptible of the finest polish.

196. *English cast-steel* is prepared by, breaking to pieces blistered steel, and then melting it in a crucible with a flux composed of carbonaceous and vitrifiable ingredients. The vitrifiable ingredients is used only in as much as it is a fusible body, which flows over the surface of the metal in the crucibles, and prevents the access of the air. Broken glass will answer for this purpose. When thoroughly fused it is cast into ingots which by gently heating, and carefully hammering are tilted into bars. The steel becomes more brittle, and more highly carbonized in proportion to the carbon, coal or chalk used.

197. *To make edge-tools from cast-iron.* Pour the melted steel on a piece of wrought iron, previously brought to a welding heat, and placed in the centre of a mould : cover the iron entirely, and then forge into the shape required.

198. *To color steel blue.* Polish the steel finely, then ex-

pose to an uniform degree of heat. There are 3 ways: 1st. By a flame producing no soot, as spirit of wine. 2d. By a hot plate of iron. And 3rdly. By wood ashes. Wood ashes for fine work bears the preference. The work must be covered over with ashes and watched, when the color is sufficiently heightened, the color is perfect.

199. *To give a drying quality to poppy oil.* Into 3 pounds pure water put 1 oz. of white vitriol, and mix the whole with two pounds of oil of pinks, or of poppies. Expose in a firm earthen vessel, to a sufficient heat to produce simmering. When one half of the water is evaporated, pour the whole in a jar and leave it until the oil becomes clear. Decant the clearest part by means of a glass funnel. Stop the funnel with a cork, and when the oil has risen to the top of the water, take out the cork and supply its place with the finger, and be careful to let only the water escape by your finger: retaining the oil.

200. *To give a drying quality to fat oils.* Take nut, or linseed oil 8 lbs; white lead slightly calcined; yellow acetate of lead; calcined white vitriol, each 1 oz.; litharge 12 oz.; one head of garlic. Pulverize the dry substances, and mix them with the garlic and oil, over a fire capable of keeping the oil in a slight state of ebullition, continue it until the oil ceases to throw up scum, and the head of the garlic is brown.

Take from the fire, and let it settle, when the oil becomes clear, pour it off carefully into large mouthed bottles: it will clarify itself in time and improve in quality.

201. *For coarse painting.* Linseed oil may be used, but for fine and delicate painting nut, or poppy oil will be required.

202. *Another.* Take of nut oil 2 lbs.; common water 3 lbs.; white vitriol 2 oz. Mix and submit to slight boiling till little remains, separate the oil from the water as before directed: it will soon become clear.

203. *Resinous drying oil.* If the paint is destined for external articles, take 10 lbs. of drying nut oil: (if for internal, 10 lbs. drying linseed oil;) resin 2 lbs.; turpentine 6 oz. Cause the resin to dissolved the oil by a gentle heat; when dissolved add the turpentine, pour off from the sediment, and preserve in wide mouthed bottles, it must always be used fresh.

204. *Fat copal varish.* Take picked copal, 16 ounces, prepared linseed oil, or oil of poppies, 8 ounces, spirit of turpentine 10 ounces. Liquify the copal over a common fire, then add the oil, in a state of ebullition; when these are incorporated, take the vessel from the fire, and when the heat has partly subsided, add the turpentine warm. Strain through cloth, and put into a bottle.

205. *Varnish for watch cases in imitation of tortoise shell.* Copal of an amber color 6 oz.; Venice turpentine 1 1-2 oz.; prepared linseed oil 24 oz.; essence of turpentine 6 oz. In a vessel liquify the copal, make the oil hot and add it, then the Venice turpentine heat, and lastly the essence.

206. *Colorless copal varnish.* Take of such copal as moistens by letting of rosemary drop upon it. Reduce them to powder, and sift through a fine hair sieve. Put it into a glass, on the bottom of which it must lie more than a finger's breadth thick; pour upon it essence of rosemary to a similar height; stir the whole until the copal is dissolved into a viscous fluid. Let it stand for two hours, and then pour gently on it two or three drops of alcohol, which distribute over the oily mass, by inclining the bottle in different directions with a very gentle motion. Repeat this by little and little, till the varnish is of a proper degree of fluidity. When it has stood a few days decant off. This may be applied to paste board, wood and metals, and on paintings, the beauty of which it greatly heightens.

207. *Gold colored varnish.* Copal in powder 1 oz.; essential oil of lavender 2 oz.; essence of turpentine 5 oz. Put the essential oil in a vessel upon a sand bath, heated by a moderate fire. Add to the oil while very warm, and at several times the copal powder, stirring the mixture with a white-wood stick. When the copal has disappeared, and at three times the essence nearly boiling, and keep stirring the mixture. The result is a varnish of a gold color.

208. *Camphorated mastic varnish for paintings.* Take of mastic, cleaned and washed 12 oz.; pure turpentine 1 1-2 oz.; campher 1-2 oz.; white glass, pounded, 5 oz.; essence of turpentine 26 oz. Reduce the mastic to fine powder, mix this powder with the glass coarsely pounded, put them all, except the camphor and turpentine, together in a short necked glass vessel, prepare a white-wood stick to stir it with.

Set this vessel into another filled with water, which must be made to boil for two or three hours. When the solution appears to be sufficiently extended add the turpentine and camphor, the next day it must be drawn off and filtered through cotton.

209. *Shaw's mastic varnish for painting.* Bruise mastic with a muller on a painter's stone, which will detect the soft parts, or tears, which are to be rejected, and 6 oz. of the remainder put into a clean bottle with 14 oz. of *good* spirits of turpentine, (twice distilled if you can get it.) Dissolve the gum by shaking the bottle in your hand for half an hour without heat; then strain through a piece of calico, and place it in a well-corked bottle where the light of the sun can strike it, for two or three weeks, which will cause a mucilaginous precipitate, leaving the remainder as transparent as water, which may then be decanted into another bottle and put by for use. If found on trial to be too thick, thin it with turpentine.

210. *To make painter's cream.* Take of very clear nut oil, 3 ounces; mastic in tears, pulverized, 1-2 oz.; acetate of lead, in powder, 1-3 of an ounce. Dissolve the mastic in oil, over a gentle fire; pour the mixture on to the acetate of lead in a marble mortar; stir with a wooden pestle, adding water in small quantities, until the matter appears like cream, and refuses to admit more water.

211. *Sandarac varnish.* Gum sandarac 8 oz.; pounded mastic, 2 oz.; clear turpentine, 4 oz.; pounded glass 4 oz.; alcohol 32 oz. Mix and dissolve as before.

212. *Compound sandarac varnish.* Powdered copal of an amber color, once liquified, 3 oz.; gum sandarac, 6 oz.; mastic cleansed, 3 oz.; clear turpentine, 2 1-2 oz.; pounded glass, 4 oz.; pure alcohol, 32 oz. Mix, and pursue the same method as above. This is a durable varnish for furniture.

213. *Wax varnish for furniture.* Melt over a moderate fire, in a very clean vessel, two ounces of white or yellow wax; and when liquefied, add four ounces of good essence of turpentine. Stir the whole until it is entirely cool, and the result will be a kind of pomade, fit for waxing furniture.

214. *To make turner's varnish for boxwood.* Take seed lac, 5 oz.; gum sandarac, 2 oz.; gum elemi, 1 1-2 oz.;

Venice turpentine, 2 oz. ; pounded glass 5 oz. ; pure alcohol, 24 oz. (For a mode of bleaching seed or shell lac for varnishes, see "*Bleaching*,")

115. *Gallipot varnish.* Take of gallipot or white incense, 12 oz. ; white glass pounded, 5 oz. ; Venice turpentine, 2 ounces ; essence of turpentine, 32 ounces. Make the varnish after the white incense has been pounded with the glass.

216. *Lacquer for brass.* Take of seed lac, six ounces ; amber or copal, ground on porphyry, two ounces ; dragon's blood, forty grains ; extract of red sandal wood obtained by water, thirty grains ; oriental saffron, thirty grains ; pounded glass, four ounces ; very pure alcohol, forty ounces. To apply this varnish to articles of brass, expose them to a gentle heat, and then dip them into the varnish. Two or three coatings may thus be given if necessary. The varnish is durable, and has a beautiful color.

217. *To prepare water proof boots.* Take three ounces of spermaceti, and melt it in an earthen over a slow fire ; add thereto six drachms of India rubber, cut into slices, and after it dissolves add of tallow, eight ounces ; hogs lard, two ounces ; amber varnish, four ounces ; mix, and it will be fit for use immediately.

218. *To make leather and other articles water proof.* Dissolve one pound of India rubber, cut into bits, the smaller the better, in two gallons of pure spirits of turpentine, by putting them together into a tin vessel that will hold four gallons. This vessel is to be immersed in cold water contained in a boiler, to which fire is to be applied so as to make the water boil, occasionally supplying what is lost by evaporation, until the India rubber is dissolved. Fifteen pounds of pure bees wax are now to be dissolved in ten gallons of pure spirits of turpentine, to which add two pounds of burgundy pitch, and one pound of gum frankincense. It is to be dissolved in the same way as the India rubber. Then mix the two solutions, and when cold, add one gallon of copal varnish, and ten gallons of lime water, one gallon at a time, stirring it well up for six or eight hours in succession, and repeating, when any is taken out. If it is wanted black, mix two pounds of lamp black with two gallons of spirits of turpentine, (deducting the two gallons from the quantity previously employed,) and add it before putting in the lime

water. To use it, lay it on with a painter's brush and rub it in.

219. *To make black japan.* Take of boiled oil, one gallon; umber, eight ounces; asphaltum, three ounces; oil of turpentine, enough to reduce it to a proper thinness.

220. *To make blacking.* Ivory black and molasses, of each twelve ounces; spermaceti oil, four ounces; white wine vinegar, four pints.

221. *To make Bailey's composition for blacking cakes.* Gum tragacanth, one ounce; neat's foot oil, superfine ivory black, deep blue, prepared from iron and copper, each two ounces; brown sugar candy, river water, each four ounces: mix them well, and evaporate the water, and form your cakes.

222. *To make blacking balls for shoes.* Mutton suet, four ounces; bees wax, one ounce; sweet oil, one ounce; sugar candy, and gum arabic, one drachm each, in fine powder; melt together over a gentle fire, and add thereto about a spoonful of turpentine, and lampblack sufficient to give it a good black color; while hot enough to run, make it into a ball by pouring it into a tin mould; or let it stand, and mould it by the hand.

223. *To make liquid japan blacking.* Three ounces of ivory black; two of sugar; one of sulphuric acid; one of muriatic acid; and one table-spoonful of sweet oil and lemon acid, and one pint of vinegar. First mix the ivory black and sweet oil together, then the lemon and sugar, with a little vinegar, to qualify the blacking, then add the sulphuric and muriatic acids, and mix them all well together.

224. *A cheap method.* Ivory black, two ounces; brown sugar, one and a half ounces; sweet oil, half a table-spoonful: mix them well, and then gradually add half a pint of small beer.

225. *To make turpentine varnish.* Mix one gallon of oil of turpentine with five pounds of powdered resin; put it in a tin can on a stove, boil for half an hour, and when cold it is fit for use.

226. *To make varnishes for violins, &c.* To a gallon of rectified spirit of wine, add six ounces of gum sandarac, three ounces of gum mastic, and half a pint of turpentine varnish; put the whole into a tin can, which keep in a warm

place, frequently shaking it, for twelve days, until it is dissolved; then strain, and keep for use.

227. *To varnish glass.* Pulverize a quantity of gum adragant, and let it dissolve for twenty-four hours in the white of eggs well beat up, then rub it gently on the glass with a brush.

228. *To make white copal varnish.* On sixteen ounces of melted copal, pour four, six or eight ounces of linseed oil, boiled, and free from grease; when well mixed by repeated stirrings, and after they are pretty cool, pour in sixteen ounces of the essence of venice turpentine, and strain through a cloth. Amber varnish is made in the same way.

229. *To make black copal varnish.* Lampblack, made of burnt vine twigs, black of peach stones; the lampblack must be carefully washed and afterwards dried.

230. *To make yellow copal varnish.* Yellow oxide of lead of Naples and Montpellier, both reduced to impalpable powder. These yellows are hurt by the contact of iron and steel; in mixing them up, therefore, use a horn spatula, and a glass mortar and pestle.

231. *To make blue copal varnish.* Indigo, Prussian blue, blue verditer, and ultra marine. All these must be very much divided.

232. *To make India rubber varnish.* Dissolve India rubber, cut small, in five times its weight of rectified essential oil of turpentine, by keeping them some days together; then boil one ounce of this solution in eight ounces of drying linseed oil for a few minutes; strain the solution and use it warm.

233. *To make economical white house paint.* Skim milk, two quarts; fresh slacked lime, eight ounces; linseed oil, six ounces; white burgundy pitch, two ounces; Spanish white, three pounds; slack the lime with water, mix it with one fourth of the milk, and expose to the air. The oil in which the pitch has been previously dissolved, is then to be added, a little at a time: then the rest of the milk, and afterwards the Spanish white. This quantity is sufficient for twenty-seven square yards, two coats, and the expense not more than ten pence.

234. *To make cheap beautiful green paint.* The cost of this paint is less than one fourth of oil color, and the beau-

ty far superior. Take four pounds Roman vitriol, and pour on it a tea-kettle full of boiling water, when dissolved add two pounds of pearlash, and stir the mixture well with a stick, until the effervescence ceases; then add a quarter of a pound of pulverized yellow arsenic, and stir the whole together. Lay it on with a paint brush, and if the wall has not been painted before, two or even three coats will be requisite. To paint a common sized room with this color will not cost more than five or six dollars. If you wish a pea-green put in less, if an apple-green, more of the yellow arsenic.

235. *To make a composition for rendering canvas, linen, and cloth, durable, pliable, and water proof.* First, to take out the stiffening, wash it with hot water, dry it, rub it with the hand, stretch tight on a frame, and let the *first coat* be made thus: take eight quarts of boiled linseed oil, half an ounce of burnt umber, a quarter of an ounce each of sugar of lead, white vitriol, and white lead, grind all fine, except the white lead, with a little of the oil on a stone and muller; then mix all the ingredients with the oil, and add three ounces of lampblack, deprived of its grease by stirring in a broad iron vessel over a slow fire. For the *second coat*, take the same ingredients as before except the white lead; it will set in a few hours according to the weather, with a dry paint brush, work it hard with the grain of the cloth or canvas in order to make the nap lie smooth. For the *third coat* to make it a *jet black*, take three gallons of boiled linseed oil, an ounce of burnt umber, half an ounce sugar of lead, a quarter of an ounce each of white vitriol and verdigris, and half an ounce of Prussian blue; grind all fine, and add four ounces of lampblack deprived of its grease as before. Lay it on as you would paint.

236. *To make it green.* Yellow ochre, four ounces; Prussian blue, three-fourths of an ounce; white lead, three ounces; white vitriol, half an ounce; sugar of lead, one-fourth of an ounce; good boiled linseed oil enough to make it thin so as to go through the canvas.

237. *To make it yellow.* Yellow ochre, four ounces; burnt umber, one-fourth of an ounce; white lead, six or seven ounces; white vitriol, one-fourth of an ounce; sugar of lead, one-fourth of an ounce; boiled linseed oil, as in green.

238. *To make it red.* Red lead, four ounces; vermilion,

ion, two ounces; white vitriol, one-fourth of an ounce; sugar of lead, one-fourth of an ounce; oil, as before.

239. *To make it white.* White lead, four pounds; spirits of turpentine, one-fourth of a pint: white vitriol, half an ounce; sugar of lead, half an ounce; boiled oil, enough to make it thin. The same preparation may be used for wood or iron, only reducing the oil about three quarts out of eight.

240. *To prepare substitute for cochineal.* The insects of the feverfew, or motherwort, contain a coloring matter which is equal to cochineal; but if they are bruised in detaching them from the plant, the coloring matter is lost. Therefore, inclose the stalks in a case nearly air tight, and heat it in an oven, which will suffocate the insects. Sixteen pounds of the stalks will yield above a drachm of the dried insects.

241. *To clean pictures.* Take of the oldest ley, two quarts; Genoa soap rasped fine, one-fourth of a pound; spirit of wine, one pint; boil all together, strain through a cloth, and let it cool: dip a brush in this composition and rub the picture all over; after drying, repeat, and dry again. Then dip a little cotton in nut oil, and pass it over the picture. When perfectly dry, rub it well with a warm cloth, and it will appear of a beautiful freshness.

242. *To dye cotton and linen blue.* This is done with a solution of one part of indigo, one part of green sulphate of iron, (copperas,) and two parts of quick lime.

243. *To dye a silk shawl scarlet.* First dissolve two ounces of white soap in boiling water; rub the shawl in this, repeat in a second or third water, until it is clean, and afterwards rinse it out in warm water; then dissolve half an ounce of the best Spanish annatto in hot water; pour this solution into a pan of warm water, handle the shawl through it for a quarter of an hour, then take it out and rinse it in clean water. Then dissolve a piece of alum of the size of a horse bean in warm water, and let the shawl remain in it half an hour; take it out and rinse in clear water. Then boil one fourth of an ounce of cochineal for twenty minutes, dip it out of the copper into a pan, and let the shawl remain in this from twenty minutes to half an hour, which will make it a full blood red. Then take out the shawl, and add to the liquor in the pan a quart more of that out of the copper, and

about half a small wine-glassful of the solution of tin ; when cold, rinse it lightly out in spring water.

244. *To dye silk lilac.* For every pound of silk, take one pound and a half of archil; mix it well with the liquor ; make it boil a quarter of an hour, dip the silk quickly, then let it cool, and wash it in river water. It will be a fine violet, or lilac color.

245. *To dye silk stockings, &c.* Wash the stockings clean in soap and water, and rinse in hot water ; in the mean time pour three table spoonsful of purple archil into a wash basin half full of hot water ; put the stockings in this, and when of the shade called half violet or lilac, take them out and slightly rinse them in cold water. When dry, hang them up in a close room in which sulphur is burnt, and when they are evenly bleached to a flesh color shade, take them from the sulphuring room and finish by rubbing the right side with a clean flannel. Satins and silks are done in the same way.

246. *To obtain a dyeing matter from potatoe tops.* Cut off the tops when in flower, and extract the juice by bruising and pressing it. Linen or woollen immersed in this liquor forty-eight hours, will take a brilliant, solid, and permanent yellow color. If the cloth be afterwards plunged in a blue dye, it will acquire a beautiful permanent green color.

247. *To turn red hair black.* Take a pint of the liquor of pickled herrings, half a pound of lampblack, and two ounces of iron. Mix, and boil them for twenty minutes, then strain, and rub the liquid well into the roots of the hair.

248. *To dye white gloves purple.* Boil four ounces of logwood and two ounces of roche alum in three pints of soft water till half wasted. Strain, and let the liquor cool, then rub the gloves over with a brush dipped in the solution, and when dry repeat it. Twice is sufficient unless the color is to be very dark ; when dry, rub off the loose dye with a coarse cloth ; then beat up the white of an egg, and with a sponge, rub it over the leather. The dye will stain the hands, but wetting them with vinegar before they are washed, will take it off.

249. *To dye gloves resembling Limerick.* Steep saffron in boiling soft water for about twenty-four hours ; then having slightly sewed up the tops of the gloves to prevent

the dye staining the inside, wet them over with a sponge or soft brush dipped in the liquid.

250. *To stain beach wood a mahogany color.* Break two ounces of dragon's blood in pieces, and put into a quart of rectified spirit of wine; let the bottle stand in a warm place, and shake it frequently. When dissolved, it is fit for use.

251. *Another method.* Boil one pound of logwood in four quarts of water, and add a double handful of walnut-peeling. Boil it up again, take out the chips, add a pint of the best vinegar, and it will be fit for use.

252. *To stain paper yellow.* Infuse an ounce of powdered turmeric root in a pint of spirit of wine. This, and the following colors are to be spread even on the paper with a broad brush dipped in the tincture.

253. *To stain paper crimson.* Infuse India lake for some days in spirit of wine, and then pour off the tincture from the dregs.

254. *To stain paper green.* Verdigris dissolved in vinegar, will do it.

To stain paper orange. First stain the paper yellow with turmeric, then dissolve half an ounce of pearlash in a quart of water, filter the solution, and apply with a brush.

To stain paper purple. Use a tincture of logwood.

255. *Hare's method of bleaching shell lac.* Dissolve in an iron kettle one part of pearlash in about eight parts of water, add one part of shell or seed lac, and heat the whole to boiling. When the lac is dissolved, cool the solution and impregnate it with chlorine, till the lac is all precipitated.

256. *To clean black veils.* Pass them through a liquor of bullock's gall and water, rinse in cold water; then take a small piece of glue, pour boiling water on it, and pass the veil through it; clap it, and frame it to dry.

257. *To clean white satin and flowered silks.* Pass them through a solution of fine hard soap, blood warm, drawing them through the hand. Rinse in lukewarm water, dry, and finish by pinning out. Brush the flossy or bright side with a clean clothes brush, the way of the nap; then dip a sponge into a size, made by boiling isinglass in water, and brush and dry near a fire. Silks are treated in the same way, but not brushed.

258. *To clean colored silks of all kinds.* Put soft soap into boiling water, and beat it into a strong lather. At blood heat put in the article, and if strong, it may be rubbed as in washing; rinse quickly in warm water, and for bright yellows, crimsons, maroons, and scarlets, add oil of vitriol to another water, so as to give it a sourish taste; but for oranges, fawns, browns, or their shades, use no acid. For bright scarlet, use a solution of tin. Gently squeeze, roll in a course sheet, and wring it. Hang it in a warm room to dry, and finish by calendering. For pinks, rose colors, and their shades, instead of oil of vitriol or solution of tin, use lemon juice or vinegar. For blues, purples, and their shades, add a small quantity of pearlash: it will restore the colors. Wash the articles like a linen garment, but instead of wringing, gently squeeze and sheet them. When dry, finish with fine gum water, or dissolved isinglass, to which add some pearlash, rubbed on the wrong side; then pin them out.

259. *To scour clothes, coats, pelisses, &c.* If a black, blue, or brown coat, dry two ounces of fuller's earth, and pour on it sufficient boiling water to dissolve it, and plaster with it the spot of grease; take a penny worth of bullock's gall, mix with it half a pint of stale urine; and a little boiling water; with a hard brush dipped in this liquor, brush spotted places. Then dip the coat in a bucket of cold spring water. When nearly dry, lay the nap right, and pass a drop of oil of olives over the brush to finish it. If the color is gray, drab, brown, or maroon, cut yellow soap into thin slices and pour water upon it to moisten it. Rub the greasy and dirty spots of the coat. Let it dry a little, and then brush it with warm water, repeating, if necessary, as at first, and use water a little hotter; rinse several times in warm water and finish as before.

260. *To revive faded black cloth.* Having cleaned it well, dip it in warm water and squeeze it dry. In the mean time, let 2 or 3 ounces of logwood be boiled half an hour in a copper vessel. Put the cloth into the logwood liquor and boil it half an hour; then take it out, and after adding a small piece of green copperas, put it in, and boil another half hour. Hang it in the air for an hour or two, then rinse it in two or three cold waters; dry it, and brush with a soft brush, over which a drop or two of sweet oil has been rubbed.

261. *To take iron moulds out of linen.* Hold the iron

mould on the cover of a tankard of boiling water, and rub on the spot a little salt and juice of sorrel ; then wash it in lye.

262. *To remove spots of grease from cloth.* Apply a solution of potash ; but use it week, so as not to injure the cloth. White paint or wax may be taken out by spirits of turpentine or sulphuric ether.

263. *To take mildew out of linen.* Rub it well with soap ; then scrape some chalk, and rub that also in the linen, lay it on the grass, and as it dries, wet it a little—twice doing will bring it out.

264. *To take out spots of ink.* As soon as the accident happens, wet the place with juice of sorrel or lemon, or with vinegar, and the best hard white soap.

265. *To clean all sorts of metal.* Scrape a little kernel or rotten stone—mix half a pint of refined neat's foot oil with half a gill of spirits of turpentine ; wet a woollen rag therewith, dip it into the scraped stone, and rub the metal well. Wipe it off with a soft cloth, polish with dry leather, and use more of the stone.

266. *To take stains out of mahogany.* Mix 6 ounces of spirit of salt, (muriatic acid,) and 1-2 an ounce of rock salt of lemons (powdered) together. Drop a little on the stain, and rub it with a cork till it disappears. Wash off with cold water.

267. *To clean gloves without wetting.* Brush them with a mixture of dried fulling earth and powdered alum ; sweep it off, sprinkle with dry bran and whiting, and dust them well. If they are much soiled, take out the grease first with crumbs of toasted bread and powder of burnt bone.

268. *To take out writing.* If recently written, wet the paper repeatedly with oxymuriatic acid, and afterwards with lime water. If the ink has been long written, wet first with sulphuret of ammonia, and then with the acid and lime water as before.

269. *To make a fire and water proof cement.* To half a pint of vinegar add the same quantity of milk ; separate the curd, and mix the whey with the whites of five eggs ; beat it well together, and sift into it a sufficient quantity of quick lime to make a thick paste. Broken vessels, mended with this cement, never afterwards separate ; for it resists the action of both fire and water.

270. *To brew ale or strong beer in small families.* A bushel and three quarters of ground malt will make 18 gallons. The water, heated to 155 or 160 degrees Fahrenheit, should be poured on the malt as quickly as possible; mix well by active stirring; cover the vessel close one hour, in cold weather, an hour and a half. If hard water be used, boil, and let the temperature fall to 155 or 168; but rain water may be added to the malt as soon as it arrives to 155 degrees. While this is going on, infuse 2 pounds of hops in as much boiling water as will cover them, for two hours; squeeze out the liquor, and cover close; then boil the hops ten minutes in twice as much water as there is of the first liquor; strain, and when cold, and after the wort has fallen to 70 degrees, add both the hops liquors to the wort; stir in a pint of good thick yeast, cover it, keep it in a place of the temperature of 65 degrees, until fermented; then draw off into a clean cask previously rinsed with boiling water. It must not be bunged tight until two days after the slow fermentation has ceased.

271. *Cheap beer.* Pour ten gallons of boiling water upon one peck of malt in a tub; stir it well, let it stand about half an hour, and then draw off the wort; pour ten gallons more of boiling water upon the malt, let it stand another half hour, stirring occasionally, then draw it off and put it with the former wort; add to this 4 ounces of hops, boil it well, strain the hops from it, and when about milk warm put in yeast to make it ferment: when the fermentation is nearly over, put the liquor into a cask, and as soon as the fermentation has perfectly subsided, bung it close down—the beer is then fit for use.

272. *To make beer and ale from pea shells instead of malt.* Fill a boiler with the green shells of peas; pour on water till it rises half an inch above the shells, and simmer for three hours, strain off the liquor, and add a strong decoction of wood sage or hops, so as to render it pleasantly bitter; then ferment in the usual manner. By boiling a fresh quantity of shells in the decoction before it becomes cold, the liquor when fermented will be as strong as ale.

273. *To fine beer:* It will generally become fine by keeping, or it be fined thus:—Boil an ounce of isinglass in three quarts of beer until dissolved; when cold, put into the cask, and stir it well with a stick. Tap it soon, for the isinglass is apt to make it flat as well as fine.

274. *To restore a barrel of stale or sour beer.* Put a quarter of a pound of good hops, and two pounds of sound chalk into the bung hole ; stop it close, and in a few days it will draw perfectly fresh. Or, a small teaspoonful of super-carbonate of soda may be mixed with every quart as it is drank.

275. *To restore a barrel ropy of beer.* Mix a handful of bean flour with a handful of salt, and stir it in at the bung-hole. Or powder half an ounce of alum very fine, and mix with a handful of bean flour.

276. *To make spruce beer.* Pour 8 gallons of boiling water into a beer barrel containing 8 gallons more of cold water ; then add 16 pounds of molasses, with a few table spoonfuls of the essence of spruce, stirring the whole well together ; add half a pint of yeast and keep it in a temperate situation, with the bung-hole open for two days till the fermentation be abated ; then put in the bung, and bottle off the beer. It is fit to drink in a day or two.

277. *To make red currant wine.* Take soft cold water, 11 gallons ; red currants, 8 gallons ; raspberries, 1 quart. Ferment. Mix raw sugar, 20 pounds ; beet root sliced 2 pounds ; red tartar in powder, 3 ounces ; one powdered nutmeg, and one gallon of brandy. This will make 18 gallons of wine.

278. *To make compound wine.* An excellent family wine may be made of equal parts of red, white, and black currants, ripe cherries and raspberries, well bruised, and mixed with soft water, 4 pounds of fruit to a gallon of water. When strained and pressed, three pounds of moist sugar are to be added to each gallon of liquid. After standing open for three days, during which it is to be stirred frequently, put it into a barrel, and leave it for a fortnight to work ; then add a ninth part of brandy, and bung it down. In a few months it will be a most excellent wine.

279. *Imitation of port wine.* Take six gallons of good cider ; 1 1-2 gallons of port wine ; 1 1-2 gallons of the juice of elder berries ; three quarts of brandy ; 1 1-2 ounces of cochineal. This will make 9 1-2 gallons of wine. Pulverize the cochineal, put it with the brandy in a stone bottle, let it remain a fortnight, shaking it twice every day. Then put five gallons of the cider into a nine gallon cask, adding to it the elder juice and port wine, and then the brandy and cochi-

neal. Rinse out the brandy bottle with the other gallon of cider, pour it into the cask, bung it close, and in six weeks it will be ready for bottling.

280. *To make American honey wine.* Put a quantity of comb, from which honey has been drained, into a tub, and add a barrel of cider from the press; stir, and leave for one night; then strain, and add honey until the liquor will bear an egg; put it into a barrel, and after fermentation commences, keep the barrel full for 3 or 4 days, that the froth may work out of the bung-hole. As the fermentation moderates, put the bung in loosely, lest stopping it tight might cause the cask to burst. At the end of 5 or 6 weeks, draw the liquor off into a tub, and put the whites of eight eggs, well beaten up, and a pint of clean sand, into it: then add a gallon of cider spirit, and after mixing the whole together, return it into the cask or barrel, and bung it down tight. In the month of April following, draw it off into kegs for use. It is equal to almost any foreign wine.

281. *Grape wine.* To every gallon of ripe grapes put a gallon of soft water, bruise the grapes, let them stand a week without stirring; then draw the liquor off, and to every gallon of wine put 3 pounds of lump sugar; put the whole into a cask or barrel, but do not stop it until it has done hissing, then bung it close, and in six months it will be fit for bottling. A better wine, though smaller in quantity, is made by leaving out the water and diminishing the quantity of sugar.

282. *To detect sugar of lead, corrosive sublimate, and antimony, in wines.* Put a few drops of sulphuric acid (oil of vitriol) into a glass of wine, and if it contain lead, or corrosive sublimate, a white precipitate or settling, will fall to the bottom. If it contain antimony, the settling will be blackish.

283. *To make British brandy.* To thirty gallons of clean rectified whiskey, put half a pound of spirits of nitre; half a pound of cassia buds ground; half a pound of bitter almond meal, (mix the cassia and almond meal together before they are put to the spirit;) one ounce of sliced orris root, and 15 or 20 prune stones pounded. Stir the whole well together two or three times a day, for three days or more: let them settle, then pour in one gallon of the best wine vinegar;

and to every four gallons of this mixture, add one gallon of foreign brandy.

284. *To obtain rum from molasses.* Mix two or three gallons of water with one gallon of molasses, or in that proportion, and add yeast in the proportion of half a gallon to every 100 gallons of the mixture. Once or twice a day stir in the head as it rises, and in three or four days add two gallons more of water to every gallon of molasses originally used, and the same quantity of yeast as at first. Four, five, or six days after this, a portion of yeast is added as before, and about an ounce of jalap root powdered; (or in winter one ounce and a half;) the fermentation then proceeds with great violence, and in three or four days the wash is fit for the still: one hundred gallons of this wash will yield twenty-two gallons of rum from one to ten over proof.

285. *To rectify whiskey into Holland gin.* To every 20 gallons of proof spirit add 3 pounds of juniper berries, and 2½ ounces of oil juniper; distill with a slow fire until the feints begin to rise, then change the receiving can; this produces the best Rotterdam gin.

286. *To obtain sugar from beet root.* Pound the beets in a wooden trough with wooden stampers; press out the juice; simmer it in a polished copper kettle, and take off the scum as it rises. To 100 quarts of the juice add two ounces of slacked lime, diluted so as to have the appearance of milk, and continue the boiling till the juice is thickened to the half of it. Then strain through a woollen cloth, simmer down to the consistence of syrup, put it into glass, stone, or wooden vessels, and place near a moderate fire; crystals of sugar will soon appear, and the mucilaginous juice may be expressed, or squeezed out.

287. *To make Usquebaugh.* Take of best brandy, 1 gallon; raisins, stoned, 1 pound; cinnamon, cloves, nutmeg, and cardamons, of each 1 ounce, crushed in a mortar; saffron, 1-2 an ounce; rind of one orange, and brown sugar candy, 1 pound. Shake these well every day, for at least 14 days, and then fine it for use.

288. *To preserve meat, or smoked hams.* Dip a brush into pyroligneous acid, (acid of smoke,) brush them over with it, and they are secure from all danger.

289. *Acid of ants.* Take of ants, one pound; boiling water, four pounds. Infuse for three hours, press out the

liquor and strain. This is an excellent stimulant, and is used as a lotion in impotency.

290. *Honey water for the hair.* Take of honey 4 pounds; very dry sand 2 pounds. Mix, and put into a vessel that will hold five times as much; distill with gentle heat, and a yellowish acid water will come over. This acid greatly encourages the growth of hair.

291. *Portable lemonade.* Take of tartaric acid 1-2 an ounce; loaf sugar three ounces; essence of lemon, half a drachm. Powder the tartaric acid and the sugar very fine in a marble or glass mortar, (never use a metal one,) mix them together, add the essence of lemon, a few drops at a time, stirring the mixture after each addition, till the whole is added and thoroughly mixed; then divide into 12 equal parts, and wrap each part in a piece of white paper. One of the papers, dissolved in a glass of cold water, makes a fine lemonade, the cost of which is one penny.

292. *Substitute for tea.* In Germany the leaves and flowers of strawberries are substituted for green tea. The youngest and cleanest leaves are to be selected, and thoroughly dried, in the shade. Then make it exactly in the same manner as China green tea, and it is hardly possible to discover the difference.

293. *Substitute for coffee.* The yellow beet root, when sliced and dried in a kiln, and especially if ground with a small quantity of Turkey, or West India coffee, will furnish an excellent substitute for either. It requires much less sugar than foreign coffee, and is somewhat stronger. The beet should not be stripped of its leaves, for this injures the growth of the plant, and alters the quality of the juice.

294. *Coffee milk.* Boil a spoonful of ground coffee in a pint of milk, a quarter of an hour; then put into it a shaving or two of isinglass, and clear it; let it boil a few minutes, and set it on the side of the fire to fine. Sweeten with sugar, and it makes a fine breakfast for those of spare habits and whose lungs are affected.

295. *To remove freckles from the face and improve the complexion.* Put half a pound of castile soap, scraped very fine, into a gallon of boiling water. Stir it well for sometime, and let it stand till cold. Add a quart of rectified spirit, and half an ounce of oil of rosemary; stir them again. In Italy this is put up in phials and called tincture pearls.

296. *To make the teeth white.* Mix honey with finely pulverized charcoal.

297. *To clean the teeth.* Take one pound of soft water ; two ounces of the juice of lemons ; burnt alum and common salt, of each six grains ; mix, boil them a minute in a cup, then strain and bottle for use ; dip a small bit of sponge in it, and rub the teeth once a week.

298. *To prevent the tooth ache.* Use the flowers of sulphur as a tooth powder after dinner, and every night on going to bed ; this is an excellent preservative of the teeth, and make a practice of washing behind the ears with cold water every morning.

299. *To perfume clothes.* Takes cloves, cedar, and rhubarb, of each, one ounce ; pulverize, and sprinkle them in a box or chest, where they will create a most beautiful scent, and preserve the apparel against moths.

300. *The best rouge for the face.* Take fine pomatum without scent, in which there is a proportion of white wax, and mix carmine with it until it acquires a proper tint ; then with a little cotton, pass it over the face until color is clearly diffused, void of grease. This will be found to imitate perfectly the natural color of the complexion without injuring the skin.

301. *A wash for sun burnt faces and hands.* To each half pound of ox gall, add roche alum, 1-2 a drachm ; rock salt, two drachms ; sugar candy, half an ounce ; borax, 1 drachm ; and camphor half a drachm. Mix, and shake well for 15 minutes ; then shake it frequently every day for 15 days, or until the gall is transparent, and filter through paper.

302. *To make Windsor soap.* Melt hard curd soap, and scent with oil of caraway and essence of bergamot.

303. *Shining black ink.* Take 8 ounces of the best blue gall nuts ; four ounces of copperas ; (green vitriol, Roman vitriol, or sulphate of iron ;) and 2 ounces of clear gum arabic. Pulverize in an iron mortar, put it into a stone bottle, and add three pints of clear rain water ; shake it 3 or 4 times a day for seven days ; then drain it off gently into another stone bottle, which place in an airy situation to prevent it from becoming foul or mothery.

304. *To make red ink.* Infuse Brazil wood raspings in clear vinegar for two or three days ; then boil over a gentle

fire, and filter while hot through paper laid in an earthen ware cullender. Put it again over the fire, and dissolve in it, first half an ounce of gum arabic, and afterwards, of alum and white sugar, each half an ounce. Be careful that the Brazil wood be not adulterated with Braziletto or Campeachy wood.

305. *Green writing ink.* Take an ounce of verdigris, powder it, put it in a quart of vinegar, and in two or three days strain off the liquid, to every pint of which, add five drachms of gum arabic, and two drachms of white sugar.

306. *Good common printing ink.* Take 16 ounces of varnish; 4 ounces of oil, well boiled; 4 ounces of fine lamp-black; 2 ounces of fine Prussian blue, and one ounce of fine indigo. Boil one hour.

307. *Best printing ink.* In a secured iron pot, (fire outside when possible,) boil 12 gallons of nut oil; stir with an iron ladle, long handle; while boiling, put an iron cover partly over, set the vapor on fire by lighted paper, often applied, keep it well stirring, and on the fire one hour at least, (or till the oily particles are burnt,) then add one pound of onions cut in pieces, and a few crusts of bread, to get out the residue of oil; also 16 ounces of varnish; three ounces of fine lamp-black, and half an ounces of ground indigo. Boil well one hour.

308. *Printers' red ink.* Soft varnish and vermilion with whites of eggs, not very thick. Common varnish, red lead, and orange.

309. *Perpetual ink for inscriptions on tomb stones, marble, &c.* Melt three parts of pitch, and mix it with one part of lamb-plack. Fill the letters with this ink in a melted state—it will endure as long as the stone itself.

310. *Substitute for Indian ink.* Boil the cuttings of glove leather in water till it forms a size, which when cool, becomes of the consistence of jelly; then take some of the fine lamp-black which is obtained by holding an earthen plate over the flame of a candle, and mix a little of the size with it while the plate is still warm. This requires no grinding, and is as good as the best Indian ink; it is of the same color, works as freely with the pencil, and is as perfectly transparent.

311. *Indelible ink for marking linen.* Take a drachm of

nitrate of silver, (lunar caustic,) dissolve it in a glass mortar in double its weight of pure water, and add ten drops of nitric acid; this is the ink. In another glass vessel dissolve a drachm of salt of tartar in one and a half ounces of water; this is the liquid with which the linen is wet previously to the application of the ink.

312. *To convert sheep skins into leather.* Sheep skins for gloves, book covers, pocket books, &c. and which when dyed, are converted into mock morocco, are dressed as follows: they are first to be soaked in water and handled, to separate all impurities, which are to be scraped off. Then hang them up in a close warm room to putrefy, so as to loosen the wool, &c. which is to be removed with the knife. Then steep them in milk of lime for a month or six weeks, to harden and thicken. When taken out, smooth the fleshy side with a sharp knife, and steep them in a bath of bran and water until they become thinner in their substance. Now immerse the skin in a solution of alum and common salt in water, in the proportion of one hundred and twenty skins to three pounds of alum, and five pounds of salt, and frequently agitate them in order to render them firm and tough. Then from this bath remove them to another composed of bran and water, and let them remain until quite pliant by slight fermentation. Then to give the upper surface a gloss, tread them in a wooden tub with a solution of yolks of eggs in water, previously well beaten up, until the solution becomes transparent, which is proof that the skins have absorbed the glazing matter. They are now converted into leather, and are to be drained from moisture, hung upon hooks in a warm apartment to dry, and smoothed over with warm hand-irons.

313. *To prepare sheep leather for various elegant purposes by dyeing.* The skins, when taken from the lime bath, are immersed in one composed of dog and pigeon dung, dissolved by agitation in water; let them remain until the lime is separated, and the skins have attained the state of soft pliable pelt.

314. *To dye this pelt red,* wash and sew them into bags stuffed with clippings and shavings of leather, immerse them with the grain side outwards, in a bath of alum and cochineal, of the temperature of one hundred and seventy to one hundred and eighty degrees, and agitate them until they are sufficiently dyed. Then transfer each bag to a sumach bath,

where they receive consistency and tenacity ; and from this bath plunge them into a saffron one to improve the color.

315. *To dye these skins black*, the washed pelt is first immersed in the sumach bath, and then rubbed over on the grained side, with a stiff brush dipped into a solution of acetate of iron. To give these prepared skins the grain and polish of morocco, they are first oiled, and then rubbed on a firm board by a convex piece of solid glass, to which a handle is attached. The leather being now rendered more compact, it is then rubbed or pressed hard with a sharply grooved boxwood instrument, shaped like the glass one just described. Lamb and kid skins are dressed, tanned, and dyed in a similar manner.

316. *To dye morrocco and sheep leather. To dye it blue.* Steep the leather one day in urine and indigo, and then boil with alum. Or wash the skins in a decoction of elder berries, and wring them out ; then boil elder berries with alum water, wet the skins in it once or twice, dry them and they will be very blue.

317. *To dye it red.* Wash the skins, and lay them two hours in galls ; then wring them out, dip them in a liquor made with ligustrum, alum and verdigris, in water ; and lastly, in a dye made of Brazil wood boiled with ley.

318. *To dye it purple.* Wet the skins with a solution of roche alum in warm water, and when dry, after rubbing them with the hand, with a decoction of logwood in cold water.

To dye it green. Smear the skin with sap-green and alum water boiled.

319. *To dye it yellow.* Smear the skins with alces and linseed oil dissolved and strained.

To dye it orange color. For light orange, smear with fustic berries boiled in alum water ; for a deep orange, with turmeric.

320. *To preserve plants from frost.* Before the plant has been exposed to the sun or thawed, after a night's frost, sprinkle it well with spring water, in which sal ammoniac, or common salt has been dissolved.

321. *To preserve fruit trees in blossom from frost.* Surround the trunk of the tree with a wisp of straw or hemp, one end of which, with a stone tied to it, is to be sunk in a vessel of spring water at a little distance from the tree ; one

vessel will conveniently serve two trees ; or the cord may be lengthened so as to surround several before its end is plunged into the water. The vessel should be placed in an open situation, out of the reach of any shade, so that the frost may produce all its effects on the water by means of the cord communicating with it.

322. *To remove the mildew on wheat.* A solution of common salt in water, a pound to a gallon, is an excellent remedy. With a pail of the mixture in one hand, and a brush in the other hand, sprinkle it over the field, repeating three or four days, and the mildew will soon disappear.

323. *Uses to which frozen potatoes may be applied.* Frozen potatoes, when three times distilled, produce a spirit from hydrometer proof to ten per cent. over proof ; therefore a principal purpose and use to which they may be turned, is the making of alcohol.

324. *To destroy the fly on turnips.* As the turnips come up, sow recently slacked lime upon them. It is an infallible protection.

325. *Remedy against the bite of the turnip fly.* Soak the seed in train oil before it is sown.

326. *To preserve eggs.* Apply with a brush a solution of gum arabic, or immerse the eggs in it ; dry them, and pack them in dry charcoal dust.

327. *A substitute for milk and cream.* Beat up the whole of a fresh egg in a basin, and then pour boiling tea over it gradually, to prevent its curdling. It is difficult from the taste to distinguish it from rich cream.

328. *The best way to preserve butter.* Take two parts of the best common salt, one part of sugar, and one of saltpetre ; beat them up and blend the whole together. Mix one ounce of this with every sixteen ounces of butter, and it will keep good three years, with a rich marrowy consistence, and fine color, but it ought to stand three or four weeks before it is used.

329. *To cure musty grain.* Immerse it in boiling water, and let it remain until the water becomes cold.

330. *To remove flies from rooms.* Take half a tea-spoonful of black pepper in the powder, one tea-spoonful of brown sugar, and a table-spoonful of cream ; mix them well together, place it in the room on plate, and the flies will soon disappear.

331. *To make excellent bread.* Steam off the water from three pounds of pared boiled potatoes, and leave them a few minutes over the fire ; then mash them fine and mix them while hot with seven pounds of good flour, adding a spoonful or more of salt. Put a quart of water milk warm, with three large spoonsfuls of yeast, gradually to the potatoes and flour, and after working it well, let it remain four hours before baking.

332. *To manufacture glass.* Glass is made by melting silex with a flux of some alkaline substance, or with a metallic oxide. The silex may be either sand, flint, or spar. The alkaline substance may be either soda, pearlash, sea-salt, wood-ash, red lead, borax, arsenic, or nitre ; but a number of them is generally used together ; or the oxide, when that is used, may be litharge. The materials must first be reduced to powders in mortars or horse mills. After sifting out the coarse parts, the proper proportions of silex and flux are mixed together, and kept in the calcining furnace at a moderate heat for five or six hours, frequently stirring it, and taking off the scum, until the materials are melted. When taken out, the matter is called frit. To convert the frit into glass, it is then pounded and vitrified in the melting pots of the glass furnace.

333. *Materials for the best looking-glass plates.* White sand cleansed, sixty pounds ; purified pearlash, thirty pounds ; nitre, fifteen pounds ; borax, one pound ; arsenic, half a pound.

334. *For making common or green window glass.* Cheapest kind of white sand, one hundred and twenty pounds ; unpurified pearlash, thirty pounds ; wood-ashes, well burnt and sifted, sixty pounds ; common salt, twenty pounds ; arsenic, five pounds.

335. *To preserve milk.* Draw the milk from the cow into bottles, and as they are filled, cork them and fasten the corks. Spread straw on the bottom of a kettle or boiler, on which place the bottles with straw between them. Fill the boiler with cold water, heat it, and as soon as it begins to boil, take off the boiler, and cool gradually. When cold, pack the bottles away with straw in a cool place. It will keep eighteen months or longer, as sweet as when first milked from the cow.

336. *To cure smoky chimneys.* The common causes

are that the wind is too much let in above, or the smoke stifled below, or there is too little room in the vent. The best method of cure is to carry from the air, a pipe under the floor, and opening under the fire ; or, when higher objects are the cause, to fix a moveable cowl at the top of the chimney.

337. *To avoid injury from bees.* If a wasp or bee is swallowed, drink a tea-spoonful of common salt dissolved in water. It kills the insect, and cures the sting. Salt is the best cure for external stings. If bees swarm upon the head, smoke tobacco and hold an empty hive over the head, and they will enter it.

338. *To raise water in all situations.* It is done in the simplest manner, by the mere use of an iron rod, forced into the earth by a windlass. In a few days, or less, a spring of pure water will be found. Tin pipes may then be put down the aperture, and it preserves a fine stream which sometimes rises from four to five feet high.

339. *To bring horses out of a stable.* Throw the harness or saddles to which they may have been accustomed, over the backs of the horses in this predicament, and they will come out of the stable as tractably as usual.

340. *Curious mode of silvering ivory.* Immerse a small slip of ivory in a weak solution of nitrate of silver, (lunar caustic,) and let it remain till it takes a deep yellow color ; then take it out, immerse it in a tumbler of clear water, and expose it in the water, to the rays of the sun. In about three hours the ivory becomes black, but on being rubbed, it soon changes to a brilliant silver.

341. *Paste for sharpening razors.* Take one ounce of pulverized oxide of tin, and mix with it a sufficient quantity of the saturated solution of oxalic acid to form a paste. Rub it over the strap, and when dry, a little water may be added. It gives a fine edge to a razor.

342. *To escape the effects of lightning.* Those who take shelter under a tree during a thunder storm expose themselves to a double danger ; first, because their clothes being thus kept dry, their bodies are more liable to be struck by the lightning ; and secondly, because a tree serves to attract and conduct the lightning, which in passing to the ground, shivers the trunks and branches, and kills every thing that is near. As metals of all kinds have a strong attraction for lightning, it is dangerous to sit or stand near them at such

times, and when in the house, avoid the window, door, or walls, during a thunder storm. The nearer a person is to the middle of a room, the better.

343. *To remedy the effects of dram-drinking.* Whoever makes the attempt to abandon spirit drinking, will find from time to time, a rankling in the stomach, with a sensation of sinking, coldness, and an inexpressible anxiety. This may be relieved by taking often a cupful of an infusion of cloves, made by steeping an ounce in a pint of boiling water for six hours, and then straining off the liquor.

344. *The air bath.* The air bath is beneficial to all persons, but especially to children. Dr. Franklin informs us that every morning at day-break, he got out of bed and passed half an hour in his chamber without any clothes; and this, he adds, seemed rather pleasant than otherwise.

345. *For botts in horses.* Take of bees-wax, mutton tallow, and loaf sugar, each eight ounces, put it into one quart of new milk and warm it until it is melted; then put it into a bottle, and give it just before the wax &c. begins to harden. About two hours after, give physic, and the botts will be discharged in great numbers, each piece of wax having from one to six or eight of them sticking to it, some by the head, but most of them by their legs or hooks.

346. *To dye a silk shawl crimson.* Take about a table-spoonful of cud-bear, put it into a small pan, pour boiling water upon it. Stir and let it stand a few minutes, then put in the silk and turn it over a short time, and when the color is full enough, take it out; but if it should require a more violet or crimson color, add a spoonful or two of purple archil to some warm water, and dry it within doors. To finish it, it must be ironed, or pressed.

347. *To dye feathers or bristles green.* Verdigris and verditer, each one ounce; gum water, one pint; mix them well, and dip the feathers or bristles, having been first soaked in hot water, into the mixture.

348. *Blue for the same.* Indigo and risse, each one ounce; and a piece of alum the size of a hazel nut; put them into gum water (solution of gum arabic or tragacanth,) and dip the materials into it hot, hang them up to dry, and clap them well that they may open, and by changing the colors they may be dyed of any color.

349. *Red do.* One ounce of Brazil wood in powder ; half an ounce of alum ; a quarter of an ounce of vermilion ; and a pint of vinegar ; boil them up to a moderate thickness, soak the feathers or bristles in hot water, and then dip them in the mixture.

350. *To stain oak a mahogany color.* Boil together Brazil wood and Roman alum, and before it is applied to the wood a little potash is to be added to it.

351. *A suitable varnish for wood thus tinged,* may be made by dissolving amber in oil of turpentine, mixed with a small portion of linseed oil.

352. *To stain musical instruments crimson.* Boil one pound of ground Brazil wood in three quarts of water for an hour ; strain it and add half an ounce of cochineal ; boil it again for half an hour gently, and it will be fit for use.

353. *Purple for the same.* Boil a pound of chip logwood in three quarts of water for an hour, then add four ounces of pearl-ash and two ounces of indigo pounded.

354. *To extract grease spots from silks and colored muslins.* Scrape French chalk, put it on the grease spot, and hold it near the fire or over a warm iron, or water-plate, filled with boiling water. The grease will melt, and the chalk absorb it, brush or rub off the chalk and repeat if necessary.

355. *To take stains out of silk.* Mix together in a phial two ounces of essence of lemon ; one ounce oil of turpentine. Rub the spots on the silk gently with a linen rag dipped in this composition.

356. *To take spots of paint from cloth,* apply spirits of turpentine with a sponge, let it be some hours, then rub it. This if possible should be done before the paint is dry,

357. *White mead wine.* Take seventeen gallons of cold soft water, white currants six quarts, ferment. Mix honey thirty pounds, white tartar in fine powder three ounces. Add balm and sweet brier, each two handfuls, white brandy one gallon, press out eighteen gallons.

358. *Red mead or metheglin wine.* Cold soft water seventeen gallons, red currants six quarts, black currants two quarts, ferment. Mix twenty-five pounds of honey, beet root sliced one pound, red tartar in fine powder four ounces, add cinnamon in fine powder two ounces, brandy one gallon.

359. *Cider wine.* Take soft water, cold, four gallons; cider, fifteen gallons; honey, twelve pounds; tartar in powder two ounces; ferment. Mix ginger, six ounces; sage and mint, two handfuls. Add brandy one gallon. This will make eighteen gallons good wine.

360. *Excellent ginger wine.* Put into a boiler ten gallons of water, and fifteen pounds of lump sugar; the whites of six or eight eggs, well beaten and strained; mix all well together while cold. When it boils skim it well, put in a half a pound of common white ginger, and boil it twenty minutes. Have ready the rinds of seven lemons, cut very thin, and pour the hot liquor on them; when cool put it into your cask, with two spoonsful of yeast; put a quart of the warm liquor, on two ounces isinglass shavings, shake it well, then put it in the barrel. Next day stop the barrel up, and in three weeks bottle it, and in two or three months you will have a most delicious liquor.

361. *To restore sour wines.* Take calcined gypsum, in powder, one ounce; cream of tartar in powder, two ounces; mix them in a quart of brandy and pour them into the cask, put in also a few sticks of cinnamon, and stir the wine without disturbing the lees. Bung up the cask the next day.

362. *Hard pomatum.* Thirty pounds suet; one and a half pounds of white wax; six ounces essence of bergamot; four ounces lemon; one ounce of lavender; four drachms of oil of rosemary; and two drachms of essence of ambergris. Melt and strain the suet, and when nearly cold add the perfumes, stirring it well, when properly mixed pour it into tin moulds.

363. *Cephalic, or headache snuff.* Powdered asarum; powdered dock-leaf, small quantity; Scotch snuff, very fine, as much as you please.

364. *To tan without bark or mineral astringents.* Put the hides into a preparation of bran and water for two days. Then put them in the liquor, made of seventeen gallons of water, half a pound of Aleppo galls, five pound of tormentil, or septfoil root, and one and a half ounces of Bengal catechu. The galls &c. are to be finely powdered and boiled in the water some time, and when cool the skins are to be put in, and handled frequently during the first two or three days, afterwards to remain three days, then to be handled three times more in one day; and finally to remain undisturbed

twenty-five days when the process will be completed. The saving will be fifty per cent. in money and two or three months in time, and the leather will be better than if tanned in the usual way.

365. *To weld tortoise shell.* Provide a pair of pincers, the tongs of which will reach four inches beyond the pivot. Now file the shell clean to a lap joint, carefully observing that there be no grease about it. Wet the joint with water, apply the pincers hot, following them with water, and the shell will appear, as if it were originally the same piece.

366. *To make cement for metals.* Take of gum mastic, 10 grains; rectified spirit of wine twenty drachms; strong isinglass glue, made with brandy, and 10 grains gum ammoniac. Dissolve all together and keep it stopped in a phial. When intended to be used, set it in warm water.

367. *To make isinglass glue.* Dissolve isinglass in water by boiling, strain through coarse cloth, evaporate it to such a consistence, that being cold the glue will be hard and dry.

368. *This is greatly improved;* by adding brandy after straining, and then evaporating as above.

369. *Mahogany colored cement.* Melt together two oz. of beeswax, and half an ounce of Indian red, and a small quantity of yellow ocher to bring it to proper color.

370. *To make red sealing wax.* Gum shell-lac well powdered, two ounces; rosin and vermilion each one ounce. Mix them well together and melt over a gentle fire, and when the ingredients are thoroughly incorporated, work the wax into sticks. The sticks must be rubbed with woollen cloths to make them smooth. And the vermilion may be increased or lessened in quantity, as you want it more or less red.

371. *Black sealing wax.* Proceed as above, substituting the best ivory black, for vermilion.

372. *Green.* Proceed as above, using powdered verdigris, or if the color is required to be very green, distilled or crystals of verdigris.

373. *Blue.* Proceed as in *red*, using smalt well powdered, or verditer.

374. *Yellow.* As the red, on substituting masticot, or turpeth mineral.

375. *To clean gold lace.* Rub it with a soft brush dipped in roche alum burnt, and sifted to a very fine powder.

376. *To obtain the fragrant essences from the fresh rinds of citrons, oranges, &c.* Procure as many fresh citrons as is required. Clean all specks from the outer rind, break off a piece of loaf sugar and rub the citron on it till the yellow rind is completely absorbed. The sugar impregnated with the essence is from time to time to be cut away, and put in an earthen dish. The whole being thus taken off, the sugared essence is to be closely pressed, and put by in pots, where it is to be squeezed down hard, and covered over with a bladder and tied tightly up. It is at any time fit for use, and will keep for many years.

377. *To preserve phosphorus.* Keep it in places where neither light nor heat has access.

378. *To make gun powder.* Pulverize separately 5 drachms of saltpetre, and 1 of sulphur, 1 of newly burnt charcoal; mix them together with a little water in a mortar, so as to make the compound into a dough, which must be rolled out into round pieces the thickness of a pin between two boards. Lay a few of these together and cut them with a knife into small grains, which are to be placed on a sheet of paper, in a place to dry. While working, it must be prevented from sticking, by using of the compound powder that has not been wet.

379. *A mode of preparing paper which shall resist moisture.* Plunge unsized paper, once or twice into a solution of mastic, in oil of turpentine, and dry by a gentle heat. This has all the properties of writing paper, and may be used for that purpose. This particularly useful where paper is liable to be exposed to wet or damp, as it resist the effects of both, and is not injured by mouldiness, nor likely to be destroyed by mice or insects.

380. *To render paper fire proof.* Whether the paper be plain, written, printed on, or even marbled, stained or painted for hangings, dip it in a strong solution of alum water, and then thoroughly dry it. In this state it will be fire proof. This will be readily known by holding a slip over the blaze of a candle. Some paper requires to imbibe more of the solution than by a single immersion, in which case the dipping and drying must be repeated till it becomes fully saturated. Neither the color nor quality of the paper will be in the least affected by this process, but on the contrary will be improved.

381. *Shrewsbury cake.* Sift 1 pound of sugar, some pounded cinnamon, and nutmeg grated, into 3 pounds of flour. Add a little rose water to three eggs well beaten, mix them with the flour, then pour in as much butter melted as will make it a good thickness to roll out.

382. *Jumbles.* One and a half pound of flour; one pound of sugar; threefourths of a pound of butter; four yolks and 2 whites of eggs, with a wine glass of rose water, roll them thick with fine powdered sugar, and bake on tins.

383. *Savoy biscuit.* Take of sugar about the weight of twelve eggs, of flour the weight of 7 eggs, beat the white, and yellow of twelve eggs separately; grate in the rind of 1 lemon, after being in the oven a few minutes, grate on some sugar.

384. *Almond cake.* Take one pound of almonds blanched and beaten, ten eggs well beaten, one pound of sugar, and one fourth of a pound of flour.

385. *Pound cake ginger bread.* Take 6 eggs; 1 pound sugar; one pint of molasses, a full tea cup of ginger, a tea spoonful of pearl-ash dissolved, a little mace, nutmeg, one pound of fresh butter creamed, mix these well together, and then beat in 2 pounds of flour.

386. *Ginger cake.* Flour three pounds; one pound of sugar; one pound of butter; two ounces of ginger, a little nutmeg, a pint of molasses, a gill of cream, make them warm, and mix them well together, and bake in a slack oven.

387. *Sugar cake.* Take one pound of flour, threefourths of a pound of sugar, a half a pound of butter, 5 eggs. Mix and drop them on tin, and put sugar sanded on them just as you put them in the oven, or frost them.

388. *Cup cake.* Three cups of sugar, one cup of butter, two teaspoonfuls of pearl ash, three eggs, 5 cups of flour, all beaten together with as much spice as you please.

389. *Cider cake.* Flour two pounds, sugar 1 pound, butter half a pound, cider one pint, cloves and cinnamon as much as you please, two teaspoonfuls of pearl ash, with or without fruit.

390. *Whip.* Take two cups of cream, one of white wine, grate in the skin of a lemon, sweeten to your taste, the whites of 3 eggs, then whip it with a whisk, take off the froth, and pour it into your jelly glasses.

391. *To make venison paste.* You must bone your venison and season it with two ounces pepper, 1 nutmeg mixed with salt, then mince three pounds beef suet, put it in the pan ; bake with moderate and even fire six hours.

392. *To dress a turtle.* Take a turtle of eight pounds, cut off the head, cut it open, scald the fins and calpee, (under shell,) skin them ; then take out the guts, cut them open and cleanse them well ; take care not to break the gall. Take for the soup the guts, with a knuckle of veal, some sweet herbs, onions and cayenne pepper. Season the rest of the meat with the same seasoning, which put in the upper shell with some balls of other meat, and calipee, and bake it. When it is baked, take the yolks of three eggs, to a turtle of eight pounds, beat them well, pour in a little wine, take some of the soup, and brew it together, throw in a lump of butter rolled in flour, and put it into the calipash (upper shell) and and calipee.

493. *A good gravy for any use.* Burn one ounce of butter in a pan, at such a distance from the fire, that as you strew in the flower, it may brown, but not blacken, put to it two pounds of coarse leau beef, 1 quart of water, half a pint wine, 3 anchovies, two eschalots, some whole pepper, cloves and mace, three or four mushrooms, or pickled walnut, let it stew for an hour, then strain, it will keep some time, and is fit for any savory dish.

394. *Wedding cake.* Take flour, butter, sugar, and raisins, of each, 3 pounds ; mace, cinnamon, and nutmegs, of each, one ounce ; two dozen of eggs, six pounds of currants, and half a pint of brandy. Beat the butter to cream, and then beat the sugar into the butter ; add the froth of the yolks of the eggs after being beaten, and then the froth of the whites ; mix fruit, spice, and flour together, and add them in with beating. Five or six hours baking will answer for a large loaf.

395. *Election cake.* Take five pounds of flour, 2 pounds of sugar, threefourths of butter, five eggs, yeast, one pint, of milk, and spice, as you please.

396. *Federal cake, or bachelor's loaf.* In a plateful of flour put a piece of butter not larger than a walnut, 2 eggs, and a spoonful of yeast ; mix it either with milk or water, as you please ; make a very stiff batter, and put it to rise in the same dish you bake it in.

397. *Oyster pie.* Put 100 oysters, clean from the shell, into a kettle with their own liquor to plump them; then season them in a dish with 12 cloves, and three blades of mace pounded fine, and pepper to your taste; then lay crust round the edge of your dish, take the yolks of four eggs boiled hard, with a handful of grated bread, sprinkle this over the top with a few pieces of butter; fill the dish nearly full, and cover the pie over with a puff paste.

398. *A cure for sore backs of horses.* Dissolve half an ounce of blue vitriol in a pint of water, and wet the injured parts with it four or five times a day.

400. *An infallible lotion for blows, bruises, and sprains, in horses.* Dissolve one ounce of camphor in eight ounces of alcohol, then add one ounce of spirit of sal ammoniac, half an ounce of oil of origanum, and one large table spoonful of laudanum. Rub it in well with the hand for full a quarter of an hour every time it is used, which should be four times a day. You will be astonished at its efficacy when you try it.

400. *A composition to render wood fireproof.* Dissolve some moist gravelly earth, which has been previously well washed and cleared from any heterogeneous matter, in a solution of caustic alkali. This mixture, when spread upon wood, forms a vitreous coat, and is proof against fire and water. The cost of this process is very insignificant compared with its great utility, being about thirty-eight cents for every hundred square feet.

401. *Foundered feet.* The hoof will appear smaller than the round one. The horse just touches the ground with the toe of the foundered foot on account of the pain, and stands in such a tottering way that you may shake him over with your hand. Take off the shoe, bleed freely from the thigh vein, and purge two or three times. Keep the hair close trimmed, and the parts clean.

402. *Hoof bound.* Cut down several times from the coronet down to the toe all round the hoof, and fill the cuts with tallow and soap mixed. Take off the shoes and turn him into a wet meadow where his feet will be kept moist.

403. *Lampas, or lampers.* This is a swelling of the first bar of the upper palate. Rub the swelling two or three times a day with half an ounce of alum, and the same quantity of double refined sugar mixed with a little honey.

404. *Instantaneous light boxes.* Make a strong solution of gum tragacanth, by infusion in warm water, until it is dissolved. Split up some slips of pine wood for matches, dip them in spirits of turpentine, and let them dry. Carefully rub two grains of chlorate or oxymuriate of potash into a fine powder, add to it one grain of the flour of sulphur, and mix them accurately in a very gentle manner. Then dip the ends of the matches into the solution of gum, and before they are dry, dip them into the powder. A little vermilion is sometimes added for the sake of the color. A small quantity of sand, asbestos, or dry linen lint, is to be put into a short phial or bottle, and a few drops of sulphuric acid, (oil of vitriol,) added to it. Plunge the coated end of the match into the phial, withdraw it instantly, and it will take fire. The cost of these matches is very trifling.

405. Or, oxymuriate of potash nine grains, sugar three grains, flour of sulphur two grains, vermilion one grain, flour two grains, highwines sufficient to form a paste, the wood must first remain a while in strong camphorated spirits, then permitted to dry, after which coat the ends with the above paste.

406. *To make exhilarating gas.* (Nitrous oxide gas.) Introduce into a glass retort some pure nitrate of ammonia, and set it upon a sand bath, or apply the heat of an Argand's lamp, or set it upon a hot stone; the salt will soon liquify, and when it begins to boil gas will be evolved. Increase the heat gradually until the body and neck of the retort are filled with a milky white vapor, in this state the temperature of the fused nitrate is between 240 and 430 degree.

A TABLE OF THE PRICES OF THE PRINCIPAL MEDICINES.

THESE prices are liable to vary a little, in different years, as well as the prices of other articles of commerce; but this will never be more than a few cents on the pound. It will be expected of course, that you will have to pay a little more in proportion by the ounce, than by the pound.

N. B. When you buy your medicine, get the druggist to weigh out, and put in a separate paper, a dose of each kind, keep this to look at as a guide in dealing out the same medi-

cine, and you can not make a mistake, being sure to have the name written on each paper.

Medicine.	first cost per lb.	sale per lb.	sale per oz.
	\$ cts.	\$ cts.	\$ cts.
Aloes,	19	38	6
Orange Peel,	15	25	3
Sal Ammoniac,	44	75	6
Arsenic,	34	50	6
Tartaric Acid,	1,00	1,50	13
Gum Arabic,	50	81	6
Annatto,	31	50	4
Assafoetida,	44	75	6
Gum Ammoniac,	62	1,13	9
Aqua Ammonia,	14	50 bottle,	6
Rose Water,	22	38	4
Alum,	6	13	2
Alcohol, per gallon,	63	1,13	
Nitric Acid,	31	50	6
Sulphuric Acid,	9	25	4
Muriatic Acid,	20	38	4
Carbonate of Ammonia,	56	75	9
Anise Seed,	19	38	4
Arrow Root,	31	62	6
Oxalic Acid,	1,50	2,50	25
Pyroligneus Acid,	31	62	6
Borax,	25	38	6
Armenian Bole,	56	88	6
Winter Bark,	25	38	4
Oxide of Bismuth,	2,50	3,25	25
Balsam Copaiva,	30	50	6
Balsam Tolu,	2,25	3,00	25
Stoughton Bitters, per doz.	2,25	3,00	sing. pap. 31
Balsam of Fir,	1,50	2,25	18
Cinnamon,	30	50	6
Chammomile,	38	75	6
Camphor Gum,	60	1,00	9
Copal Gum,	26	34	4
Peruvian Bark,	38	64	6
Lunar Caustic, per ounce,	1,06	do. 1,50	per. dr. 25
Common Caustic, do.	10		12
Cream of Tartar,	25	50	6
Prepared Chalk,	12	25	3
Copperas,	5	8	
Corrosive Sublimate,	1,13	1,75	18
Bottle Corks, gross,	56	1,00	8
Phial, do. do.	18	37	2

Medicine.	first cost per lb.		sale per lb.		sale per oz.	
	\$	cts.	\$	cts.	\$	cts.
Cowhage,	1,50		2,25			25
Colomel,	1,00		1,50			13
Cloves,	81		1,00			9
Columbo Root,	50		88			6
Cantharides,	1,75		2,50			19
Coriander Seed,	2,25		3,00			38
Colycynth,	1,00		1,50			13
Colchicum,	1,00		1,75			13
Diachylon White,	31		50			6
Ether,	67		1,00			6
Carbonate of Iron,	28					6
Fosgates Anodyne,	25					38
Liquorice Ball,	21		50			6
Nut Galls,	39		75			9
Gum Guaiac.	25		50			6
Gum Gamboge,	2,00		3,00			25
Gum Elastic,	62		1,00			9
Gum Shell Lac,	25		44			5
Gentian Root,	13		34			4
White Hellebore, pulverized,	75		1,00			13
Isinglass,	1,25		2,00			18
Pulverized Ipecac,	2,25		2,75			25
Iodine, per oz.	62				do. 1,	50
Jalap, pulverized,	75		1,25			13
Juniper Berries,	9		18			4
Gum Kino,	1,38		2,25			2
Liquorice Stick,	8		20			4
Litharge,	15		25			3
Sugar of Lead,	31		50			6
Myrrh,	50		1,00			13
Magnesia,	40		1,00			6
Manna,	81		1,13			13
Mace,	2,25		3,00			25
Musk, per oz.	1,50		2,00		to ² 2,	75
Nutmegs,	1,50		2,00			13
Spirits of Nitre, per bottle,	20		50			6
Salts of Nitre,	13		25			4
Nux Vomica,	25		50			6
Opium,	from 4,75 to 6,00		6,50 to 9,00			63
Opodeldoe, liquid, per doz. bot.	1,75				each bot.	38
Opodeldoc, common, do.	1,25				each do.	25
British Oil, per doz. phials,	1,00				each phial	18
Harlem Oil, do. do.	75				do. do.	18
Oil Peppermint,	1,50		2,00			25
“ Anise,	4,00		5,00			50

Medicine.	first cost per lb.	sale per lb.	sale per oz.
	\$ cts.	\$ cts.	\$ cts.
Oil of Almonds,	1,00	1,50	25
" Bergamont,	4,50	6,00	50
" Carui.	1,50	2,50	25
" Cloves per oz.	56		56
" Cinnamon	4,00	5,50	50
" Juniper	1,25	2,00	18
" Orange,	3,50	4,50	38
" Origanum,	1,25	2,00	13
" Hemlock,	1,25	2,00	13
" Lemon,	4,50	5,00	50
" Pennyroyal,	2,00	3,25	37
" Rosemary,	1,25	2,50	25
" Sassafras,	1,25	2,25	25
" Wormseed,	2,25	3,00	37
" Wintergreen,	4,00	5,00	50
" Castor, per gall.	1,75	2,25	6
" Sweet, in bottles,	2,75	per doz.	each bottle 38
" Lamp, per gallon,	82		per gall. 100
" Cedar,	1,50	2,50	25
" Wormwood,	3,75	4,50	50
" Tansy,	3,00	4,00	37
" Spearmint,	1,00	2,00	18
Cayenne Pepper,	47	75	6
Sulphate of Potash,	22	44	6
Pink Root,	15	32	
Phials, per gross,	3,00	4,32	do. each, 3
Quinine, per oz.	2,25	do. 3,50	3,50
Quicksilver,	75	1,00	13
Rhubarb, pulverized,	57	1,00	13
Red Precipitate,	1,00	1,50	13
Senna,	31	63	6
Squills,	18	36	6
Seneka Snake Root,	38	50	6
Sal Soda,	15	37	6
Sup. Carb. Soda,	58	1,00	13
Sponge,	50	1,00	9
Sulphur,	7	13	3
Epsom Salts,	7	from 13 to 25	6
Glauber Salts,	3	6	3
Salts of Tartar,	18	25	6
Tartar Emetic,	69	1,13	13
Spirits of Turpentine, gal.	48	63	6
Valerian,	from 41 to 50	89	6
Vitriol, Blue,	15	25	3
Vitriol, White,	12	32	3

HISTORY,
SYMPTOMS, CAUSES, AND TREATMENT
OF THE
ASIATIC CHOLERA.

—oooo—

HISTORY.

In 1817 this horrible pestilence broke out in Hindostan on the continent of Asia, and has almost constantly raged in some part of the globe ever since. It is by some supposed to have been, at that time, a new disease,—but although it had not spread so extensively, and for years in succession, previous to that period, it is yet certain that in 1790, 1787, 1783, 1782, 1780, 1750, 1741, 1730, 1696, 1676, 1669, 1629, 1600, and also at other times, in different places, the terrible ravages of a complaint, the symptoms of which were almost exactly similar to those of the present cholera, are at this day recorded on the pages of history. The first appearance of the cholera in 1817, was on the 19th of August in the city of Jessore, in Hindostan; and, in two months from its first invasion, it destroyed more than ten thousand persons in that city. During the same year it extended in almost every direction, to the distance of two hundred and fifty miles, and swept off not less than 600,000 inhabitants.

In 1818, its ravages were greater than they have ever been since in the course of one year; and extended from the equator to the twenty-eight, degree of north latitude,—spread over an extent of thirty degrees of longitude, and visited 140 cities or villages.

In 1819, it extended over about 40 degrees of latitude, 50 of longitude, and visited 64 cities: in Bombay, 150,000 died; at Malacca, 400; in Siam at Bangkok, 40,000; in the Isle of France, from 10 to 20,000; but was not so violent this year as during the two years previous.

In 1820, it raged in Sumatra, the Phillippine Islands,

Canton, and many other cities of China. Although there were only 42 cities attacked this year by cholera, yet its baneful breath was diffused over 50 degrees of latitude, and 60 of longitude.

In 1821, it reached Bassora and Bagdad on the Persian Gulf. In Bassora, 13,000 died in 11 days. At Shilaz 6,000 died. It appeared at Borneo on the eastern coast, and the Island of Java lost 102,000 inhabitants. It covered a space this year of 43 degrees of latitude, and 70 of longitude.

In 1822, it progressed towards Europe on the western coast to Aleppo, and at Tunis 4,800 died. But it was not so extensive and fatal this year as before, extending only to 10 degrees of latitude in Persia, Syria, and Mesopotamia,—and about the same space in the Chinese Empire.

In 1823, besides many other places both where it had, and had not appeared before, it extended north to the frontiers of Europe, to Astrocan and Orenbourg.

In 1824 the march of the cholera seemed nearly to be arrested. It prevailed some, however, in the Birman Empire, Hindostan, China, and Syria, and those of the most wealthy and elevated classes were its principal victims.

In 1825, it began again to be more violent, breaking out and reappearing in different parts of Asia, in Jessore, Calcutta, Benares, Arracan, Birman Empire, and also in the north of China, and Chinese Tartary.

In 1826, the cholera continued to progress towards the north in eastern Asia—passed the great wall of China, visited the city of Kuchotou, and penetrated from Kiachta to the centre of Asiatic Russia. Western Asia, however, was this year completely exempted, and fewer cities infected than in any year since 1817.

In 1827, on one side at the north, it reached the high grounds near the Himmaleh mountains, and on the other, it opened a new route towards Europe from Lahore to Casghar, and the city of Cabul—from this place it travelled with the caravans in 1828 and 1829, and Persia on the west, and Russia on the north were then visited.

In 1828, it was principally confined to British India, but continued its march towards the north, and from Lahore where it destroyed 30,000 inhabitants in 1827, it extended this year to the neighboring towns.

In 1829, it reappeared in Persia and other places,—crossed over the Ural mountains separating Asia from Europe, and

appeared in the city of Orenbourg ; extended to Rasufina, 60 miles west of that place, and spreading, by the middle of November, over 200 miles square ; but the cold weather soon arrested its progress.

In 1830, the cholera spread over various provinces around the Caspian sea. The city Tiflis was reduced by death and flight from 30,000 to 8,000.

It reappeared at Astrachan, and visiting Taritsin, Saraton, Kien, and Samarov, it proceeded along the Volga river to Novgarod ; and from thence, appearing at Kasan and Kostroma, it reached the city of Moscow on the 15th of September, when it subsided at the close of the year.

In the spring of 1831 it reappeared in Europe, extending to Archangel on the north, visiting St. Petersburg on the 26th of June, and spreading, at the south and west, to unfortunate Poland, and along the coast of the Baltic. Twenty thousand pilgrims at Mecca perished of the cholera. In Hungary it prevailed extensively. In Turkey, Austria, Prussia, and the Netherlands, the cities of Constantinople, Vienna, Berlin, and Hamburg, were visited by the common scourge ; and on the 26th of October it crossed over to England, first appearing at Sunderland, next at New Castle, Gateshead, and finally in Scotland, (Dec. 17th,) at Haddington, on the river Tyne.

In 1832, (Jan. 27th,) it appeared in Edinburg and places adjacent : shortly after, in the city of London ; and, on the 24th of March, it extended to France, and desolated the city of Paris. Soon after this it broke out in Dublin and other towns in Ireland. On the 8th of June it appeared at Quebec in North America ; in less than one week afterwards, at Montreal ; the last week in June, at New York ; on the 3d of July, at Albany ; 5th, at Detroit ; 17th, at Buffalo ; and soon after, at other places on the Grand Canal. About the middle of the month, it prevailed in New Jersey—reached Philadelphia, and on the 24th, extended to Norfolk and Portsmouth, in Virginia. It appeared in Rhode Island the first of August ; on the 15th in Boston ; and about the same time, in Baltimore and Edenton. At this time, more than 50 towns in the United States had been visited by the cholera. Deaths by cholera at Sing Sing up to August 13th were 89. In Montreal, up to the 28th, the deaths were 2,000. At this time it prevailed in Utica, in Madison co., Buffalo, Washington, Pottsville, Reading, &c. It was abating in New-York on the 21st, but increasing on the 19th Sept.

Deaths in Quebec by cholera from June 8th, to Sept. 2nd, were 2218. On the approach of cold weather, it gradually disappeared—by the 9th of Oct. it was fast declining in Canada, extinct at Washington, and, by the first of Nov. nearly so in New York. But it still existed in Kentucky and Mississippi; and in New Orleans there were not enough of the living to bury the dead,—from 2 to 300 died in a day, and their bodies were sunk in the river. The deaths in N. York this year from cholera, were 3515.

In 1833, Feb. 19th, the cholera was again, at Louisiana, but principally among the blacks. From that to the 24th of March, it had broken out in Tennessee, was raging at Matanzas, at Cuba, and 5,000 had died at Havana. April 30th, it was still prevailing in New Orleans; May 19th, on the Great Miami; and, during the month of June, still at New Orleans, Tampico, in Virginia, Kentucky, Pennsylvania, Ohio, Maryland, Alabama, Arkansas, Illinois, Indiana, and Tennessee. It is still progressing, and will probably find its way into every state, county, and town in the Union. In Kentucky, almost every county in the state has been overrun with the pestilence; in Hemingsburgh, one in every 11 has died of the cholera. A like mortality in New York would carry off 20,000 persons. That city, however, has this year been, and is, up to this date (July 15th) unusually healthy.

THE SYMPTOMS OF THE CHOLERA,

HAVE been nearly the same in all countries. Some have experienced premonitory symptoms for several hours, or days, such as diarrhea, nausea, and slight vomiting; others have been prostrated at once, as if by a blow; these become suddenly cold, the pulse ceases, and they expire in a short time. In all countries, the following have been the principal symptoms.

Diarrhea, slight cramps, nausea, pain, heat, or sense of weight at the pit of the stomach, are the warning symptoms. Then come on sinking of the circulation, coldness of the skin, vomiting and purging of a starchy matter; severe cramps, which begin in the fingers and toes, and approach the trunk. Great oppression of the stomach; internal heat; and thirst for cold water, though rejected as soon as swallowed. When

the first warnings are given by nervous agitation, and cramps, beginning at the tips of the fingers and toes, rapidly approaching the body—then, there is hardly an interval—Vomiting and purging came on; the features become sharp and contracted; there is an expression of wildness and terror on the countenance, as though the unhappy victim were conscious that the hand of death is upon him—collapse comes on; the eye sinks; the extremities, and soon the whole body assumes a leaden or blue color; the tongue is moist; the skin is damp, and deadly cold; with complete prostration of strength; anguish and agitation; suppression of the eyes, which are fixed in a vacant stare, sunk in their orbits, and surrounded by dark circles. The tragic scene soon closes; he becomes comatose, and finally, dies quietly, after a few convulsive sobs, though it is impossible to determine the moment. The body, for instance, lies apparently lifeless; suddenly a convulsive shudder shakes it; its hands are clenched, and if you put your own within them and force them open, they shut again with a spasmodic catch.

Some die without any reaction at all from the stage of collapse; sometimes there is a transitory *rallying* of the powers of life just before death; sometimes this *rallying stage* continues and becomes a fever of some days' continuance. Many are cut off by this fever; some recover from it, and are then out of danger. As a general rule, there are but few who live after the stage of collapse has become fairly established; and of those who do, there is a still less number who recover without passing the secondary fever.

The first case of acknowledged cholera in England, was that of the elder Sproat, at Sunderland, aged 69. He had been laboring under diarrhea a week or ten days before his seizure. On Wednesday, Oct. 19th, he had been taken worse: on Thursday and Friday, he had vomiting and purging of feculent matter, but no symptoms of collapse. On Saturday he was greatly better, took a mutton chop to his dinner, and went out to his keel in the afternoon. In about 20 minutes he returned, and was taken very ill, with severe shivering, giddiness, cramp at the stomach, violent vomiting and purging. On Sunday morning he was sinking; pulse imperceptible; extremities cold; skin dry; eyes sunk; lips blue; features shrunk; whispering voice; violent vomiting and purging; cramp of the calves of the legs, and complete prostration. In the afternoon his skin became warmer, but

the other symptoms continued. On the 24th he was quite collapsed, with aggravation of all the symptoms, except the vomiting, which had entirely ceased; stools passed involuntarily. On the following morning he was less collapsed; countenance more natural; blueness of the lips had disappeared; the vomiting had ceased; but the purging still continued less violent, and nearly imperceptible; extremities cold; spasms of the legs continued. Towards evening, the purging and vomiting had entirely ceased: he became sleepy; the other symptoms continuing. On the morning of the 26th he was much weaker; pulse scarcely perceptible; countenance quite shrunk; eyes sunk; lips blue, as well as the lower extremities; the nails were livid. He was comatose, and died at 12 at noon.

The second case was that of Susanna Clark, aged 18. The premonitory symptoms were slight, and of very short duration. December 5th, about 5 in the evening, she complained of uneasiness and distension of the stomach and bowels; her countenance became pallid, and expressive of much anxiety and distress. She was attacked with vomiting and purging of bilious fluids, and with cramps. She continued in this state until 8 in the evening, when bleeding was unsuccessfully attempted. She took brandy, and a mixture containing laudanum, capsicum, and ammonia. The vomiting ceased, she became much better in the night, and, on the morning of the 6th, her pulse was full and her body warm, complaining of little except a pain in the head: but, about midnight, the cramps, vomiting, and purging returned: she became cold, and apparently almost lifeless, though still sensible. Her pulse was gone; her eyes deeply sunk; she remained in the same state through the day, until 6 at night, when she became, comatose, and died at 8.

CAUSES

Of the Cholera, and methods of PREVENTION.

1. A few of the medical, and many of the non-medical community believe it to be contagious, and capable of being communicated by actual touch.

2. A larger class believe it is not contagious at all, and

that it becomes epidemic either from some general unknown cause every where existing, or from the same causes that produce other diseases, such as exposure to cold and moisture at night, and burning heat during the day ; intemperance, bad food, want of cleanliness, &c.

3. A third class believe it to be contingently contagious ; that is, that it arises at first from some unknown cause combined with the common exciting causes above mentioned, and that in the filthy hovels of the indigent, in the impure air of crowded apartments, the disease does sometimes acquire a contagious character, which it did not at first possess, and which may be prevented, or obviated, by attention to ventilation and cleanliness.

Those who believe it to be contagious in its very nature, advance the following statements :

1. The disease was imported into Calcutta, and other places in Bengal, from Jessore in 1817.

2. It has always followed the great traveled routes, such as the large roads, navigable rivers, &c. and has been transported from one country to another by vessels, armies, and caravans.

3. The nurses and attendants in cholera hospitals have frequently been attacked with the disease.

4. Several cities, fortresses, and private dwellings, have established rigorous sanitary measures, and the cholera has not been manifested among them.

5. Individuals coming from places where the disease raged, have sickened of the cholera in a healthy town ; and soon after, several of their attendants have died of the same disease.

6. The cholera was imported into Mauritius by the *Topazo* frigate, which sailed from Calcutta while the disease was raging there.

7. The disease was imported into Orenbourg, by caravans from central Asia.

8. It was brought to Dantzic, by a vessel from Riga, the captain of which died the day of his arrival, and afterwards the disease spread to the town.

9. The cholera was imported into Sunderland from *Hamburgh*, or from some of the ports on the continent of Europe.

10. It was brought into Canada by vessels and emigrants from Ireland.

To the 1st statement, that *the disease was imported into*

Calcutta, &c. from Jessore in 1817, the anti-contagionists reply, that it has been proved to have occurred nearly at the same time in various places where there had been no immediate intercourse.

To the 2d statement, *that it has always followed the great traveled routes, &c.*, they reply, that if this were true, it might be accounted for from the fact that there they are most exposed to impure air, filth, intemperance, and want of food; but, that surgeon Mitchell, (see his report from Palmacottak,) says that it "made its approach by neither of the great roads," but, "spread pretty generally through the small, low, dirty houses, in every direction."

To the 3d statement, *that the nurses and attendants in cholera hospitals, have frequently been attacked with the disease*, they reply, that although it is true that some of the attendants have been attacked, yet the history of facts shows that they are not more liable to it than others. Dr. Jameson says, that of between two hundred and fifty and three hundred attending physicians in Bengal, but three took the disease. At Bombay none of the hospital attendants were attacked, though they were assisting the patients day and night. *Kennedy*. "Only one individual out of one hundred and one attendants, was attacked." *Madras report*. "At Berhampore none of the native attendants on the cholera hospitals were affected." *Trans. Med. and Phys. Soc. of Calcutta*. "I have known the wife attend the husband, the husband attend the wife, parents their children, children their parents, and in no instance have I found the disease communicated to the attendants. *Dr. Lafevre, phys. at St. Petersburg*. "All the attendants and all the soldiers handled the sick, and supported their heads whilst they vomited, without using any precaution, and yet without being attacked with cholera." *Dr. Zudkoff, Moscow*. "In the marine hospital of St. Petersburg, of forty-three attendants on cholera patients, not a single one was affected; and in the temporary hospital at the same place, of the fifty-eight attendants, one only was affected with cholera, and he often drinking *kwass*, when very warm." *Amer. Jour. Med. Sciences*, 1832. "Dr. Foy, at Warsaw, and ten others inoculated themselves with the blood of patients laboring under the cholera, tasted their dejections, and inhaled their breaths, without receiving the disease." *Gazette Medicale*, 1831. The following is the last clause of a report to the board of health

in New-York, dated July 24th, 1832. "The medical and other attendants of the hospitals, not predisposed to the disease by their previous habits, have, also, so far as is known to the council, escaped its attack.

In behalf of the special Medical Council.

ALEX. STEVENS, *M. D. Pres.*

By order of the board of health.

J. MORTON, *Sec'y.*"

To the 4th statement, that *cholera has not appeared in several cities, &c., where sanitary (quarantine) measures have been established*, they reply, that it is very true; but that it is also true that other places adjoining those which were attacked, have escaped, notwithstanding every precautionary measure had been omitted; and that in Russia, Austria, and Prussia, where quarantine regulations were early adopted, and severely executed, the disease did appear.

To the 5th statement, that *individuals coming from places where the disease raged, have sickened of the cholera in a healthy town, and that their attendants have soon after died of the same disease*, they reply, that such instances are numerous; that other individuals, after coming from an unhealthy to a healthy town, have been attacked, and yet none of the attendants were affected; that the same causes were present in the uninfected as in the infected district, which, combined with ill-ventilated rooms, intemperance, night-watching, anxiety, and terror from the assurance that Asiatic cholera was among them, were sufficient to produce the disease.

To the 6th statement, that *the cholera was imported into Mauritius by the Topaze frigate*, they reply, that the report of John Kinnis, who had charge of a hospital in Mauritius at the time, says, that two cases occurred three weeks before the arrival of the *Topaze*, and that when the vessel arrived, not one of the patients sent from it to the hospital was affected with cholera; that the cholera did not break out among the attendants on these men, but among the African slaves and Indian convicts.

To the 7th statement, that *it was imported into Orenbourg by caravans from Asia*, they reply, that the last caravan that arrived at Orenbourg, reached that place thirty-five days before the first case of cholera appeared, and that the individuals composing it were in good health.

To the 8th statement, that *it was brought to Dantzic by*

a vessel from Riga, they reply, that Dr. Dalmas, who was sent by the French government to Warsaw, investigated the subject at Riga, and reports that the cholera did not exist at Riga at the time the vessel sailed; that it did not appear on board the ship during the voyage; that it appeared at Dantzic before the arrival of the vessel; that it broke out in the town before it appeared at the port; and that the cordon sanitaire did not protect the neighboring places.

To the 9th statement, that *the cholera was imported into Sunderland from Hamburg, or from some of the ports on the continent of Europe*, they reply, that the disease first appeared more than two miles from where the vessels were lying; and that Dr. Brown, and Dr. White, of Sunderland, state, that the same disease prevailed there in August, two months before the arrival of those vessels.

To the 10th statement, that *the cholera was imported into Canada by vessels and emigrants from Ireland*, they reply, that the board of health at Quebec are in possession of no facts calculated to show that it was imported; that the most eminent physicians and enlightened citizens of Montreal are satisfied that it is not a contagious disease, and state that many cases of cholera occurred six weeks before the vessel and emigrants arrived.

Of these contending parties with respect to the contagious nature of cholera, my object in presenting the arguments of each, *pro* and *con*, to my readers, is to enable every man to judge for himself in relation to it. My business is not to decide controversies, but to give a faithful detail of such things as *have been considered* as the causes of cholera; and we have seen that it is considered to arise from some unknown predisposing cause existing in the atmosphere; or from contagion, specific or contingent; or from common exciting causes, as, exposure to sudden changes, from heat and dryness, to cold and moisture; from intemperance, and excesses of all kinds; from fear, night watchings, and mental anxiety; from a scanty, poor diet, ill-ventilated rooms, accumulations of filth, &c. Or, (which perhaps is more probable,) that it arises from a combination or all of the above mentioned causes. Some suppose that this unknown cause is the magnetic influence of the earth, which they call the *telluric power*. Mr. Loder, of Moscow, thinks the disease is primitively nervous, and depends on an *electro-magnetic* cause; and Dr. Hahneman asserts that the cholera arises from insects,

too small to be seen, but which attach themselves to all parts of the body.

THE METHOD OF PREVENTING THE CHOLERA,

Is to avoid the causes which produce it ; and these precautions should be taken without having ones mind disturbed about the disease ; the less fear, the less hazard. The Edinburgh board of health say, " experience has shown, that the most essential precaution for escaping the disease is sobriety ; that intoxication during the prevalence of the epidemic is almost sure to be followed by an attack, and that those addicted to drinking are the most subject to take cholera, and the most likely to sink under it. In like manner, strict attention to personal cleanliness, to cleanliness and ventillation of dwelling houses, to warm clothing, to regularity of hours for sleep, to keeping as much as possible within doors at night, and to taking food before going out in the morning, may be relied on as important means of security." All those means which tend to preserve general health should be pursued ; all those causes which predispose to common diseases of our own climate should be avoided ; and, finally, the subject of prevention may be condensed into four words, *temperance, cleanliness, ventilation, and fearlessness.*

TREATMENT OF THE CHOLERA.

Very unfortunate has it been for mankind that, in most of the countries where cholera has prevailed, it has been expected that some specific or universal antidote might be found for the disease—just as if the cholera was always of the same nature, always of the same degree of violence, always affected the same organs, and always required the same treatment. It is undoubtedly from this mistaken idea, that so many different remedies have been proposed and administered, condemned and recommended. There is hardly any thing in the shape of medicines, that can be imagined, which has not been tried ; the principal remedies known, are bloodletting, calomel in large doses, opium in a great variety of forms, in great and small quantities, and by injection ; ether, camphor, musk, castor, aromatic and stimulating tinctures.

tures, essential oils, of peppermint, cloves, and cinnamon; wine, ardent spirits, external heat, warm bath, hot bath, vapor bath, cold bath, blistering the extremities, heated sand, friction with irritating rubefacients, the actual cautery (burning with a hot iron) applied near the spine, and to the limbs; emetics, purgatives, galvanism, electricity, animal charcoal, colchicum, oxygen gas, exhilarating gas, (nitrous oxyde gas,) snake root, peppers, peruvian bark, cherry lawrel, tobacco injections, sub-nitrate of bismuth, hyoscyamus, eicuta, ice; cold water, injections of salt and soda into the veins, &c. &c.

The ridiculous notion of an indiscriminate or exclusive use of either of these remedies! as been justly chastised by the New-York Cholera Bulletin in the following sarcastic remarks:—"We are on debateable ground, with a host of champions to encounter, arrayed in various style, from the armories of ancient observation and modern experience. The profession is indeed in the field in motley garb to slaughter the monster of epidemy: but the members of it agree not on the mode of destruction, and in the warmth of argument, and fury of debate, turn many of the weapons that should be directed against the enemy towards their fellow "*fili Esculapii*." Alas! then, for the public, for whom doctors and cholera are contending; they watch the fierce onslaught, and over and anon are struck by the random blows that proceed from the combatants. Yes! for 'cholera kills, and doctors slay, and every foe will have its way!'

Let us view the medical army! In the foremost rank stand the bleeders, then advance the calomel band, escorted by a troop of opium foragers; here is a company of stimulators, and there a tobacco brigade; here a file of saline aperients, and there again a guard of leechers and blisters. The men of friction are in the van, and the rear is composed of the icy legion. All these characters appear in the force raised to subdue the cholera, and by such a medley is the fell disease of Asia assailed. It is of course then said by some that the lancet will effect a cure, that calomel singly, or combined with opium, is a specific; that stimulants will restore the depressed, or tobacco will weaken the fiercest action; that saline aperients will act successfully through the circulation, that friction will stay the spasm, or that ice will moderate the accompanying fever. Now however valuable all or any of these remedies may prove, if accepted exclusive of other

treatment in every case, they will destroy more frequently than they can save."

Treatment of the cholera in Asia.

An outline of the treatment pursued by Frederick Corbyn, Esq. (1818) in the Bengal establishment, is, to give twenty grains of calomel, (in powder, not in pills,) and to wash it down with sixty drops of laudanum, and twenty of oil of peppermint in two ounces of water; to bleed freely in the first stage; to support warmth by external heat, hot bath and frictions; and internally, by cordials. The success of this plan was confirmed by the official reports of Drs. Burrill, Whyte, Daws, Craw, Tod, Richards, Longdill, Robertson, Gordon, Coats, Jukes, Taylor, Ogilvy, Campbell, Milwood, and Wallace, physicians and surgeons. Surgeon Campbell gave the calomel and laudanum every two hours, but when the spasms and vomiting had ceased, he omitted the laudanum, continued the calomel, and gave the stimulants more frequently.

Surgeon Wallace merely altered the form of giving the calomel and opium (as practised by Corbyn,) by rubbing two grains of the latter with fifteen of the former, and mixing it with two drachms of honey. After this, the patient was put into the hot bath, and small quantities of hot arrack and water, mixed with spices and sugar, were given him to drink. The patient commonly falls asleep, and in favorable cases, awakes free from danger. But if the coldness and spasms recurred, recourse was then again had to the hot bath, and opium in various forms. Of twenty-two cases thus treated, twenty recovered.

Surgeon Milwood, in his report, says, I will now give my treatment (of cholera) with my reasons for the addition I have made to Mr. Corbyn's. There are two great objects to be attained for the recovery of the patient. 1st, to allay the vomiting and purging; 2dly, to restore the pulse, heat in the extremities, and produce sleep. In order to effect these, I have added five grains of antimonial powder to the 20 grains of calomel, and one drachm of ethereal spirits of nitre to the 60 drops of laudanum. In the course of two hours, I give 10 grains of calomel and five of antimonial powder, with half the laudanum and spirits of nitre prepared in camphorated mixture in place of plain water, and repeat this as it is

required. I have found four scruples of carbonate of magnesia to be the best laxative. It remains on the stomach and generally cause two or three plentiful evacuations.

In Mauritius, Dr. Kinnis says, that "the chief remedies employed were blood-letting, warm bath, spiritous and dry frictions, rubefacients; and internally, spirits, opium, calomel, epsom salts &c.—but that from his experience, he is satisfied that bleeding is injurious, that opium prevents the action of other remedies by causing a torpor of the intestines; that the warm bath has the same effect by diverting the fluids to the external surface, and that friction of no description has any tendency to restore the natural warmth. The only medicine on which he depends is *calomel*:" "Ten grains of calomel, or when the vomiting was severe, a scruple, (20 grains,) followed, at the distance of some hours, by an ounce of salts, with, or without infusion of senna, and once or twice repeated, cured almost every case.

Treatment of the Cholera in Europe.

According to the practice of Drs. Russell and Barry, agents of the British government in Russia, when the first stage affords time for distinct treatment, the diarrhea is to be arrested at once by opium in small doses; astringent, leeches, if the patient be plethoric; by cordials and quinine, if there be cold sweats; by confining to the bed and keeping up heat; by diet; by emetics. Should spasms be the first and leading symptom, sub-nitrate of bismuth, cupping along the spine, cordial and antispasmodic medicines, opium, frictions, and dry warmth, are indicated. But when he is suddenly seized with vertigo, nausea, coldness, loss of pulse, blueness of the skin, shrinking of the features, with watery discharges, and cramps; constituting an aggravated case of the worst type—not a moment of time should be wasted, but let him be immediately placed between warm blankets, and two table spoonfuls of common salt dissolved in six ounces of warm water be given at once to produce vomiting; and immediately after, or before, a small bleeding will be desirable. Then apply dry and steady heat along the course of the spine and the pit of the stomach, by a succession of heated plates or platters; surround the upper and lower extremities with bags of heated bran, corn, ashes, or sand, rubbing at the same time with a warm hand, and a little oil to protect the skin. The

hot iron may also be applied to either side of the spine ; and if this, together with the emetic, dry heat, and frictions, should rouse the nervous power, then follow it up with cordials and opiates, external stimulants, mercurials, and mild aromatic aperients ; a horizontal position must be enforced ; and the patient's drink should be soured with nitrous acid. Warm baths, and all moisture applied to the skin are worse than useless.

An agent of the French government at St. Petersburg, who witnessed and treated the disease in a hospital of 250 patients, remarks, that the same treatment will not apply to all cases ; that the constitution of the patient and stage of the disease must be taken into consideration ; that external applications are more important than internal remedies ; that as soon as the first symptoms appear, the patient should go to bed, cover up warm, take immediately a cup of strong coffee without milk, with, or without sugar ; and soon after, from 4 to 6 drops of oil of pepperinint on sugar ; apply to the bowels at the same time bags of hot oats, ashes, or bran, until a copious sweating is produced. If there be headache, with pain at the pit of the stomach, apply a large mustard plaster ; if this fails, then take a pint or more of blood—and this must proceed all other remedies if the constitution be strong and sanguine. The tea of melissa, and one tenth of a grain of ipecac every three hours may also be given, and if necessary, the mustard plasters may be applied over the whole abdomen. If these means do not over come the vomiting, give a dose of carbonate of soda and elio-sachar-citri, of each 10 grains, adding 6 or 8 grains of salts of tartar ; and immediately afterwards, take a teaspoonful of lemon juice and water. He has often cured the complaint by emetics and castor oil—makes use of no other purgative. If collapse threaten, redouble the friction over the body,—let four persons rub at once, with dry flannel powdered over with mustard. If cramps become severe, take oil of turpentine, three ounces ; of oil of tusquium, half an ounce ; of oil of gilliflower, three and a half ounces ; of spirit of sal ammoniac, half an oz. Mix, and rub with it. Be very cautious in giving, opium, as it often produces incurable congestions of the brin without arresting the malady, and let calomel be rejected altogether. He has found the salt emetic successful in cholera : two table spoonfuls of salt are dissolved in hot water and taken warm, which is soon thrown up ; then one table spoonful of the same

is taken cold, every hour ; afterwards, a teaspoonful at a time until all alarming symptoms have subsided. If no bile is thrown up with the first dose, take 6 or 8 ounces of blood, or, if it will not run, cupping or leeches to the pit of the stomach relieves the burning sensation, and the fatigue of frequent vomiting. The patients are not to rise from their beds for the purpose of evacuation, but to make use of bed pans. He has sometimes been obliged to discontinue the salt, and give bismuth, or camphor dissolved in ether adding the mucilage of gum arabic and sugar.

As soon as the cholera assumed the character of a typhus fever, he applied leeches or blisters behind the ears, to the neck, and calf of the leg ; gave castor oil when necessary, and oxygenated muriatic acid, in doses of half, or even an ounce, upon 6 ounces of a decoction of marsh-mallow. In the third stage there is hardly any remedy which produces any other effect than to prolong, sometimes, the sufferings of the patient. With respect to drink, after the salt emetic had operated, he consulted the patients' wishes ; the best, however, was cold water in small quantities, often repeated ; or ice, in small pieces, swallowing some, and melting some in the mouth ; or toast water with a little red wine. The diet should be chicken broth with rice or sago boiled 4 or 5 hours, to which red wine may be added.

Dr. Lefevre, physician to the British embassy at St. Petersburg, remarks, that " the epidemic cholera, upon its first invasion, baffles all attempts to conquer it ; but it gradually loses its intensity, and towards its decline, becomes as tractable as other disorders of the alimentary canal." In the first stage when the pulse is full, he advocates a small bleeding in the horizontal posture, and has known bleeding, sweating, calomel and opium, rhubarb and magnesia, sub-nitrate of bismuth, hot baths, frictions, &c., to fail in the commencement of the disease, and to succeed at a more advanced period of it.

The following was Dr. Lefevre's own mode of practice when called to at an early period of the disorder :

If the patient is robust, the pulse still perceptible, and the system not too much reduced by evacuations, I order from 6 to 8 ounces of blood to be drawn from the arm, the patient being first put to bed in a recumbent posture. The following draught is then to be given ; laudanum and ether, of each 25 drops. Strong peppermint water, an ounce and a half.

If this be rejected, it should be repeated immediately ; if the second be likewise not retained, then a clyster of linseed tea with fifty drops of laudarium should be administered. It often happens that the patient after taking the first dose falls asleep, and wakes in perfect health. A large sinapism to the abdomen, and bottles of hot water to the feet, should not be omitted ; if these means produce speedy relief, an ounce of castor oil should be prescribed as soon as the stomach and bowels are quiet.

Dr. James Johnson, physician extraordinary to the king of England, and editor of the Medico Chirurgical Review, has submitted to the Westminster Medical Society a series of propositions respecting the cholera. The following is an abstract of that part which relates to the treatment :—The principal object is to restore the equilibrium of the blood ; which if once effected, a restoration of secretion, calorification, and oxygenation, follows. To effect this object, he proposes blood-letting, if the patient be young and robust, with a view of relieving the heart and internal organs from the black blood in which they are drowning, and to turn the tide of circulation from the centre to the surface of the body. At the same time, or immediately afterwards, a *full vomint* of infusion of mustard seed, or white vitriol, should be given for the same purpose, in order to drive the blood from the internal to the external parts of the body ; that after the operation of the emetic, diffusible stimulants, such as brandy and laudanum, may be used with caution so as not to induce subsequent inflammation, but that calomel alone would probably be the best medicine after the emetic. He suggests that the inhalation of oxygen gas may be beneficial, and during the use of the internal remedies he directs that heat, friction, and counter-irritation, be used externally, all at the same time, and in such a manner that the patient shall not be obliged to make the least exertion. He believes “that the disease originates in causes of which we are ignorant, and over which we have no control, and that, in crowded, filthy, and ill ventilated places, it takes on an infectious character, tending still farther to propagate and heighten the danger of the disease.”

George Hamilton Bell, who was deputed by the Edinburgh Board of Health to visit the cholera in England, advocates bloodletting, and relates a case of cholera asphyxia, in which it was decidedly beneficial in the stage of collapse.

Dr. Ogden of Sunderland, says, that the recoveries from

cold blue cholera has been a very small proportion to the deaths ; that a great majority of the recoveries reported was not attended with coldness and lividity of the extremities, great collapse, and loss of strength ; that bleeding is sometimes beneficial and sometimes injurious ; when obtained in the commencement, is often beneficial, but on the whole, that it is a doubtful remedy. Dry external heat, from bricks, bottles, bags of sand, &c., and friction, by incessantly rubbing the extremities with hot dry flannel, are of great importance in restoring the circulation. Opium sometimes relieves the sickness, and sometimes it does not. Calomel generally does no good. Sinapisms (mustard plasters) are to be applied to the pit of the stomach to allay the vomiting, and to the calves and thighs to cure the spasms. A mustard emetic often restores the pulse. Camphor, oil of peppermint, and cajeput, are not as powerful stimulants as oil of turpentine. The latter may be given by injection, or half an ounce taken by the mouth. The secondary fever is to be treated like any other fever, by shaving the head, blisters to the nape of the neck, small doses of calomel, &c. Great care must be taken to avoid errors in diet during convalescence. This has arrested the diarrhea preceding the cholera by giving every 3 hours one or two of the following pills :

Take of opium, 16 grains ; calomel, one drachm ; pulverized pepper, one and a half or two drachms ; confection of roses, a sufficient quantity. Mix, and divide into sixty pills.

Dr. James Adair Lawrie, professor of surgery, Andersonian University, and Dr. David B. White, physician to the Gateshead Dispensary and Cholera Hospital, insist on the necessity of attending to the premonitory diarrhea. Dr. L. recommends the patient to be put to bed, kept warm, and to have a flannel band round his abdomen—then to take half an ounce castor oil with fifteen or twenty drops of laudanum, and after this has operated, give 30 drops of laudanum, or one grain of opium. Saline and drastic purgatives are forbidden. If discharges continue, repeat the opiates with caution, and if 2 or 3 grains of opium fail, open a vein and apply a blister or sinapism to the abdomen. If these means fail, and collapse threaten, give a mustard emetic, and after its operation, 20 grains of calomel, and as much laudanum or opium, as the patient will bear. Mucilaginous and opiate injections are also to be used.

Dr. White remarks, that in some cases, not diarrhea, but

obstinate costiveness prevails for a time, and the disease then suddenly appears. For this costiveness he advises a pill of scammony, jalap, calomel and aloes ; also to wash and rub the body with warm water and coarse cloths at night, taking a pill of 6 grains calomel and one of opium,—and in the morning a dose of castor oil and laudanum, or half a drachm of rhubarb with 8 grains of ginger root, to be repeated if necessary. *In the acute stage*, Dr. Lawrie gives a mustard or salt emetic, and then opens a vein. He is in favor of bleeding, the earlier the better. It is more safe in the robust, and probably more safe after collapse than when it is on the point of being established ; and more safe in moderate cases, than in those which are severe. He adds, likewise, that bleeding sometimes does harm when it is difficult to explain the reason. These are Dr. Lawrie's notions. After bleeding he gives a large dose of calomel and opium, with stimulants, both externally and internally.

Dr. White thinks bloodletting has been too much recommended. It is not proper unless the pulse rises during the operation. He recommends cold water and brandy—speaks well of cupping, large injections of warm water, external warmth, and frictions for the spasms ; but has found nothing but disappointment from giving stimulants.

In the stage of collapse, Dr. Lawrie gives an emetic as before—takes a few ounces of blood while the pulse can be felt in the brachial artery—then warm injections of beef tea with brandy and laudanum—counter-irritation—diffusible stimulants—cold drink, and arrow root or beef tea given often, and in small quantities—applies external warm by heating the room, by tin cases containing hot water shaped to apply to any part of the body. Mr. Bradly moistened bran in a tub with boiling water, adding spirits of turpentine, spread it in a bag large enough to cover the whole body, and applied it, but not too hot, from neck to feet. When the perspiration is profuse and cold, it should be wiped off with dry hot towels, and camphorated or ammoniated oils should be long and diligently rubbed on those parts where irritants are not applied. Along with these stimulants, he would give calomel in moderate doses, and recommend galvanism—oxygen gas produced but little benefit—injections of spirits of turpentine and mustard, were apt to induce irritation of the rectum and bloody stools. He tried the tobacco injection, but found it injurious.

In this stage (collapse,) Dr. White says, "I have found the simplest, the most successful treatment :—the calomel and opium, carbonate of ammonia, warm injections, cordials, friction where necessary, and warmth of a dry kind ; worsted stockings filled with hot sand is admirably adopted for this purpose. To allay this vomiting, as in the former instance, effervescent draught, &c., should be used. A most salutary and speedy application, is by laying over the stomach pledgets of linen, dipped in boiling water.

In regard to bleeding, Dr. Kirk of Greenock, speaks thus:

"We are told, 'take away a portion of the circulation, and you relieve it of a part of its load, and give nature freer play; we unload the system, and induce the surcharged vessels to put on a new and livelier action.' Now, a return to healthy circulation will not result from abstracting, or adding, a portion of the circulating mass. The cessation of arterial action is not dependent on the state of the fluids, but on determinate derangement in the sensorial power ; the result of a morbid poison, by which the machinery of the circulation has been impaired in its healthy action, I speak of the stage of collapse or the period which immediately precedes it. In that stage, I can see no advantage to result from withdrawing a small portion of blood ; and in 99 cases out of a hundred, a small portion can only be withdrawn. The sensorial derangement will not be relieved by the evacuation, and the system, already depressed by excessive discharges of the most debilitating kind, will be plunged still deeper into that fatal weakness which is the principal characteristic of this disease. The evacuations of advanced cholera, are not the discharges of alvine matters, or of the ordinary fluids of the bowels. They are largely composed of the serous and saline parts of the blood ; and consequently produce a destruction of the strength as swift as it is complete.

I entertain the highest respect for some of the eminent supporters of bleeding ; but, after conscientious attention to the subject, and watching the practice in various hands, I feel myself bound to declare my conviction. When was it proposed till the present day, to relieve a condition of the extremest depression, and if no arterial excitement, by the abstraction of the principal vital fluid ? The blood is unnaturally thickened, to be sure, grumous, and probably carbonized ; but will the removing of a small column of venous blood change the condition of the rest of the sanguineous fluid, or

give energy to those nerves which, under a poisoned influence, have ceased to perform their important functions, of giving life, action, and energy, to the whole system?

I grant most freely that in the first and second premonitory stages, bleeding may do good; for then the arterial system is in a state of excitement, and the poison has not fixed its deadly fangs on the powers of life itself. But then, even, I would be cautious. A depressing influence is in the constitution, which may every hour develope itself as most deadly in its power and tendencies. Let there be withdrawn only so much as to diminish somewhat the energy of the circulation; but do not trench on the *power of life*. Ever recollect that a poison is within which nature is struggling to oppose, and by instituting increased action, seeks to free itself from her insalubrious oppressor. Nor is this the language of theory only. I have seen many attempts at bleeding in collapse, but never to any other purpose but apparent harm; and in numerous instances of the last stage of the premonitory symptoms, I have thought collapse induced by impudicious bleeding."

Dr. Kirk then proceeds, in a masterly manner, to a further examination of the common remedies. He concludes that the mustard emetic is bad practice; that where emetics are proper, common salt and water, or copious draughts of warm water, are better; but in the advanced stages of cholera he doubts their propriety. He speaks well of calomel, but cautions us against the indiscriminate use of opium—that although we are not to forget "how useful it may be from its soothing and astringent qualities in moderating the discharges," yet we must "also remember, that more than half the deaths of cholera are in its final congestive fever, and that the principal symptom of that congestive fever is congestion of the head; and consequently that the accumulated effects of a narcotic stimulant is much to be dreaded and avoided." He is opposed to the use of brandy; reminds us that cholera dissections demonstrate the existence of high inflammation of the gastric organs; that this inflammation of these organs forbids a violent stimulant, but, at the same time, will not bear such free bleeding as inflammation of other organs. "I make this remark, because it may be urged, why do you give us so many cautions about bloodletting, when you acknowledge with the same breath, that it is a disease of inflammation? I answer to this, that it is only so in its early stages. Pass the bourne of the second premonitory stage, and the evil is consummated.

When I think a strong cordial indicated, I am in the habit of preferring the pure wines, the irritation to the inflamed tissues, from their use, being less to be dreaded than the sharp and naked points of alcohol." He recommends tobacco injections, energetic perseverance in the use of dry heat, friction, and counter-irritation by the actual cautery, or by raising a blister with a cloth wrung out of boiling water, or infusion of flies in vinegar.

Mr. John Fyfe of Newcastle, (says Dr. Kirk,) who attended 579 cases of cholera, relies very much on stimulating injections, which generally produce a salutary reaction. If there was watery diarrhea, he arrested it at once by opium, and in 19 cases out of 20, convalescence followed. But if the disease was advanced, he gave repeated doses of calomel: moderated the discharges by opium, and softened the pulse by bleeding, if necessary. If it proceeds to vomiting, purging, and cramp, he prescribes a mustard emetic, copious draughts of warm water, friction, and the proper regulation of heat. If the pulse is firm, blood is taken. Calomel and opium are then used, and diluents allowed. In *collapse* he forbids large opiates and bleeding; but throws into the intestines 3 pounds of hot water, 6 ounces of brandy, and 2 drachms of laudanum. He frequently withdraws these injections by a tube—they come off cold—and repeats with hot water alone, or adds laudanum if the stomach continues irritable. In this stage he uses brandy liberally. He treats the reactive or secondary fever with laxatives, leeches to the head, sinapisms to the neck, and pit of the stomach.

Treatment in Canada and the United States.

In a letter from Dr. Caldwell of Montreal, June 24, 1832, to Dr. McNaughton of Albany, he says, "I would strongly impress it on your mind, that I have derived more advantage from what may be called the premonitory treatment, than from that during the actual attack. Cholera is invariably preceded by symptoms of gastric derangement, such as constriction or obstruction of the præcordia, or a sense of corrugation of the upper orifice of the stomach, loss of appetite, white furred tongue, nausea, slight diarrhea, thrilling sensations of heat through the bowels and different parts of the body. The moment these symptoms showed themselves I directed the patients instantly to send to me, and gave them from

gr. X to XV of hydrag. cum. creta, according to the age and strength of the patient, and in two hours followed it by tart. potassa dr. 11, in a little warm veal or chicken broth, and repeated it every second hour until it operated freely. Nothing seemed to allay the gastric irritation so well as the soluble tartar. In many instances it seemed to act as a charm, and I do not know a single instance of any one who went through the influence of this treatment that was subsequently attacked with cholera. In some instances it was necessary probably to repeat it once or twice; and where the tongue was much loaded, I added two or three grains of the submuriate to it."

Dr. Nelson, member of the Medical Board and Commissioner of Health of Montreal, gives the following treatment as the most successful :

As relates to the stomach, there are two distinct stages. The first is the vomiting, the second is the stage of collapse, or sinking, when all vomiting shall have ceased. Now, to stop the vomiting, we must paralyze the stomach; but in doing this we must not overdo the thing, lest when we require the energies of the stomach in the second stage, we find them irrecoverably lost in collapse. This is the first and greatest secret in prescribing for a cholera patient: in the first stage, sedative treatment is essential; while in the second, the very opposite, that of excitation. First, then, to arrest the vomiting, let the remedy be a sedative, and not a stimulant; give one grain of solid opium, it must be swallowed dry; if that be rejected, give a second, and so on to a third; it will rarely happen, *if the patient be kept perfectly still*, that a fourth dose will be required. Then give nothing else till vomiting shall have ceased for several hours, and keep the patient in the most quiescent state possible. During this time he suffers intolerable thirst; but this he must bear with, for drink will be returned almost before it reach the stomach, and will cause another convulsion, each of which hurries him to his end with a tenfold degree of velocity. Bear in mind, that one grain of opium is as effectual in arresting the irritability of the stomach, as ten grains, while the latter dose would not only do the same, but also paralyze the stomach beyond recovery. At the same time in order to prevent, or obviate, coldness, blueness, and spasms, dry the surface of the body by napkins, and then still further dry it by rubbing the body all over with powdered chalk, heated. If chalk cannot be had, the best substitute is flour, but in heating, it

must not be suffered to grow brown. By fomentations and moist heat, we should be undoing with one hand what we are attempting to do with the other. Second stage.—All is now quiet, and now is time to give stimulents. Small doses of warm brandy, warm punch, ether or ammonia; but be careful to choose such as are palatable to the patient. The mustard emetic is not to be used; calomel is not recommended; the idea of bleeding in cholera has its origin based on a hydraulic theory which is totally inadmissible in this disease, and he has seen its warmest supporters abandon it.

Dr. A. Brigham says that almost every remedy which had been tried elsewhere, has been resorted to at New-York, but that they have all failed in severe cases. That the most successful treatment at that place consists chiefly in external applications of cayenne pepper, mustard cataplasms, frictions, &c., giving but little, and in the stage of collapse *no* medicine by the mouth. One pound of strong unguentum, eight ounces pulverized camphor, and four ounces of cayenne pepper were mixed, and rubbed over the body and limbs, in this stage, which often produced salivation in six or eight hours. When it did so, the patients were considered safe. The consecutive fever was then met by local bleeding, blistering, &c.

Dr. William Channing, of New-York, believes camphor in small doses to be a specific for the cholera. He states that of 250 patients attacked by the cholera, and treated exclusively with camphor, only five have died. From one to three drops of unmixed spirits of camphor are to be given in a little water every hour or two, and every other medicine, especially opium, is to be withheld.

From the experiments of Dr. O'Shaugnessy, it appears that the blood of cholera patients has lost a great proportion of its natural saline ingredients, and that these same ingredients, are present in the evacuations. This discovery gave rise to the idea that the evacuations upward and downwards, are, in reality the serum of blood, which might be replaced by injecting into the veins an artificial serum containing the same ingredients as that which is lost. On this interesting subject, the following extract from the communications of Dr. Lewins to the secretary of the central board of health, England, will show the effect of this practice, and the method of performing the operation.

"Sir,—I conceive it to be my duty to let you know, for the information of the central board of health, that the great

desideratum of restoring the natural current in the veins and arteries, of improving the color of the blood, and recovering the functions of the lungs in cholera asphyxia, may be accomplished by injecting a weak saline solution into the veins of the patient. To Dr. Thomas Latta, of this place, is due the merit of first having recourse to this practice. He has tried it in six cases, three of which I have seen and assisted to treat. The most wonderful and satisfactory effect is the immediate consequence of this injection. To produce the effect referred to, a large quantity must be injected—from five to ten pounds in an adult—and repeated at longer or shorter intervals, as the state of the pulse, and other symptoms, may indicate. Whenever the pulse fails, more fluid ought to be thrown in, to produce an effect upon it, without regard to quantity. In one of the cases I have referred to, one hundred and twenty ounces were injected at once, and repeated to the amount of three hundred and thirty ounces, in twelve hours. In another three hundred and seventy-six were thrown into the veins, between Sunday, at 11 o'clock, A. M., and this day (Tuesday) at 4 P. M., that is, in the course of fifty-hours, upwards of thirty-one pounds. The solution that was used consisted of two drachms of muriate of soda, (common salt,) and two scruples of carbonate of soda, to sixty ounces of water. It was at the temperature of one hundred and eight or one hundred and ten degrees. The apparatus employed in injecting was merely one of Reid's common syringes, (the fluid being put into a vessel rather deep and narrow,) with a small pipe fitted, that it might easily be introduced into an incision in the veins of the usual size that is made in bleeding. It may however, be well to keep in mind, that, in the event of the operation being frequently repeated, it may be advisable to inject by different veins."

"Sir,—I did myself the honor to address a letter to you lately, on the effects of injecting a saline solution into the veins of a patient laboring under cholera. We have not frequent opportunities of trying this, which I denominate admirable remedy, as the disease is decidedly less frequent here; but I have seen it employed in two other cases, in the course of the last two days, with the same excellent effect. Sixty ounces are generally thrown in at once, and repeated at the end of three or four hours. In a case to-day, where I saw fifty-eight ounces injected, (being the third time of performing the operation,) the patient's pulse, at the commencement

was one hundred and eighty, very small and very feeble. She was excessively restless, with a feeling of great weakness and tormenting thirst. Before twelve ounces were injected, the pulse began to improve; it became fuller and slower, and it continued to improve, until, after fifty-eight ounces had been injected, it was down to one hundred and ten. Before I left the patient, her condition was altogether amazingly amended. There was a fine glow, and a slight perspiration on her face; the veins on the back of her head were well filled; the restlessness was removed, the feeling of excessive weakness gone, and the thirst ceased. The pulse was under one hundred, free, full and soft. Verily, sir, this is an astonishing method of medication, and I predict will lead to wonderful changes and improvements in the practice of medicine." Those who inject, must "beware of allowing air to get into the vein. The tubes, of course must be filled with fluid, as well as the pipe in the vein, before commencing, and considerably more fluid than it is intended to use, ought to be in the vessel from which it is pumped."

The following treatment (which accords with my own view of the subject,) is from Dr. Edward Tegar, inspector general of the army hospitals near Calcutta, detailing his own case and cure:—

"On Wednesday, July 18, 1832, I was seized with a slight diarrhea which continued, and on the next day, increased. The watery discharges passed without pain, so that I was thrown off my guard as to the nature of the complaint. Towards evening of the second day I became restless and feverish; at midnight my pulse was quick and very weak; spasms in my legs and arms caused me to think for the first time, that I was laboring under spasmodic cholera. On examining the copious flowings from the bowels, I found them to consist of a limpid fluid resembling chicken broth or barley. This is now considered to be the serous part of the blood. When this escapes, only the thick particles remain in the blood vessels, which soon become stagnant, and cause death. This was nearly the case with me, as the pulse had become almost imperceptible, and the dark streaks in the lines of the veins, with the color of the skin, denoted that the state of collapse was fast approaching. The question then was, can a new action be produced in the intestinal canal? Yes, I said, it is possible, and I will try that remedy which I

have so strongly recommended to others in this disease. I took three drops of croton oil on a little sugar, and confidently waited the effects. The following took place in succession : in ten minutes the stomach was discharged of an immense quantity of indigested food. The liver, which had been distended to a most painful degree with bile, poured its contents into the intestines, the gruelly discharge from the bowels was now succeeded by copious evacuations of bile and offensive matter ; the cramp ceased, and the pulse rose ; all these favorable occurrences took place in less than an hour after taking the croton oil, and I pronounced myself out of danger. This is my case ; and I hope and trust it may prove an important one to the public, as it may lead to a more successful mode of treatment than has been hitherto employed in this fatal disease. I do not, however, recommend it to any except in the early stage of the disease."

The following table exhibits the proportion of deaths, to the population, in some of the large cities of Europe and America, up to the 19th of April, 1832 :—

	<i>Population.</i>	<i>Deaths.</i>	
Moscow,	350,000	4,690	equal to 1 in 74
Petersburgh,	360,000	4,757	1 74
Vienna,	300,000	11,896	1 25
Berlin,	340,000	1,401	1 242
Hamburgh,	100,000	446	1 201
Prague,	97,000	1,335	1 72
Breslaw,	78,000	670	1 116
Konigsburgh,	70,000	1,318	1 53
Magdeburgh,	36,000	346	1 104
Braum,	33,000	601	1 54
Stettin,	24,000	250	1 96
Halle,	28,000	152	1 184
Bliberg,	22,000	253	1 77
London,	1,500,000	1,223	1 1,228
Edinburgh,	150,000	72	1 2,033
Glasgow,	180,000	395	1 455
Paisley,	60,000	204	1 294
Hungary,	8,750,000	188,000	1 46
Paris,	800,000	20,000	1 40
Montreal,	25,000	1,250	1 20
Quebec,	22,000	1,790	1 12
New-York,	200,000	2,000	1 100
Albany,	24,000	311	1 77

Although the population of Quebec and Montreal had been much increased by the arrival of emigrants, yet it is a well established fact, that the disease has been full as malignant on this continent as in any part of the world, and even a greater number of those attacked, have died in this country, than in India. The jews have wonderfully escaped the cholera. At Posen, which contained 6,000 jews when the cholera raged there, only 37 died of the disease. At Berlin, only six jews had the disease during the two first months the cholera prevailed there. This was undoubtedly owing to their well known sobriety, regularity and prudence. Usually, the most cases of cholera occur on Tuesday, and the least on Sunday. This probably arises from the excesses committed on Sunday.

At Berlin, the cases for the first seven weeks of cholera occurred on the following days:—

	<i>Cases.</i>	<i>Cured.</i>	<i>Dead.</i>
Sundays,	195	57	148
Mondays,	245	60	151
Tuesdays,	272	72	153
Wednesdays,	260	58	142
Thursdays,	252	80	184
Fridays,	225	63	143
Saturdays,	258	55	136

QUEBEC.—Cases of cholera in the two hospitals from 8 o'clock A. M. on the 8th, to 8 o'clock A. M. on the 21st:—

<i>Date.</i>	<i>from last report. Remaining</i>	<i>Admissions.</i>	<i>Convalescent.</i>	<i>cured. Discharged</i>	<i>Dead.</i>	<i>Remaining.</i>
8th	none	3	none	none	2	1
9th	1	13	none	none	6	8
10th	8	10	none	none	11	7
11th	7	13	none	none	11	9
12th	9	27	none	none	13	23
13th	23	77	9	none	40	60
14th	60	48	8	none	41	67
15th	67	68	17	2	37	96
16th	96	98	31	3	36	155
17th	155	47	62	5	37	160

18th	160	46	57	2	23	181
19th	181	66	46	12	32	199
20th	199	60	44	20	40	100
21st	199	37	46	6	32	198

Total	609					507
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On the 7th day after the appearance of the cholera at Quebec, 143 died of the disease ; and on that and the succeeding five days, the deaths from cholera amounted to 711, being an average for the six days of 118 deaths per day. From the commencement of the disease to the 6th of August, a period of *fifty-eight days*, the number of deaths from cholera at Quebec amounted to 1790.—*Neilson's Gazette*.

At Montreal, the disease raged with great violence, as will be seen from the following statement of the cases and deaths, from the commencement of the disease, to the 13th of July, inclusive :

	<i>daily cases.</i>		<i>daily burials.</i>	<i>total cases.</i>	<i>deaths.</i>
June 10th to 15th				1328	175
16,	381	86	1709	261	
17,	474	102	2183	363	
18,	261	128	2444	491	
19,	338	149	2781	640	
20,	165	94	2946	734	
21,	15	76	3097	810	
22,	109	52	3206	862	
23,	83	31	3289	893	
24,	51	21	3340	914	
25,	44	33	3384	947	
26,	27	23	3411	976	
27,	21	25	3432	996	
28,	22	20	3454	1016	
29,	37	21	3491	1037	
30,	32	22	3523	1059	
July 1,	23	17	3546	1066	
2,	13	20	3559	1076	
3,	11	14	3570	1110	
4,	23	17	3593	1127	
5,	22	13	3615	1140	
6,	19	9	3634	1144	
7,	13	9	3647	1153	
8,	14	11	3661	1164	
9,	10	9	3671	1175	

10,	7	6	3678	1184
11,	14	10	3692	1190
12,	15	10	3707	1200
13,	9	10	3716	1210

The progress of the cholera in the city of New-York from July 4th, 1823, to August 18th, inclusive, may be seen by the following table :—

<i>Cases.</i> <i>Deaths.</i>			<i>Cases.</i> <i>Deaths.</i>		
July 4,	7	4	28,	145	68
5,	18	12	29,	122	39
6,	24	15	30,	103	39
7,	85	25	31,	121	48
8,	42	21	August, 1,	92	41
9,	105	28	2,	81	34
10,	109	44	3,	90	24
11,	129	50	4,	88	30
12,	119	51	5,	96	29
13,	101	49	6,	101	37
14,	115	66	7,	89	32
15,	123	74	8,	82	21
16,	163	94	9,	73	28
17,	146	60	10,	97	26
18,	138	72	11,	76	33
19,	202	82	12,	67	23
20,	226	100	13,	104	22
21,	311	104	14,	42	15
22,	241	91	15,	75	26
23,	231	83	16,	79	26
24,	296	96	17,	43	21
25,	157	61	18,	76	19
26,	141	55			
27,	122	46	Total	5323	2057

The following table shows the number of cholera cases, and deaths, in Philadelphia and Liberties, from the 27th of July, 1832, to the 17th of August.

<i>Cases.</i> <i>Deaths.</i>			<i>Cases.</i> <i>Deaths.</i>		
July 27,	2	2	3,	35	14
28,	6	4	4,	45	13
29,	6	1	5,	65	26
30,	15	7	6,	176	71
31,	19	9	7,	136	73
August 1,	21	8	8,	114	46
2,	40	15	9,	154	58

10,	142	39	15,	73	23
11,	126	33	16,	94	30
12,	110	31	17,	90	26
13,	130	49			
14,	111	37	Total,	1610	615

How painfully humbling to the philanthropist to hear the repeated declaration that the poor and unfortunate are the exclusive victims of this "pestilence that walketh in darkness, and destruction that wasteth at noonday,"—as if Heaven had waged an exterminating warfare against the children alone of squalid poverty, or that wealth or self-created greatness were a shield against the arrows of death: but,

It comes! it comes! from every trembling tongue,

One low and universal murmur stealeth;

By dawn of day each journal is o'erhung

With starting eyes to read what it revealeth,

And all aghast, ejaculate one word—

THE CHOLERA—no other sound is heard!

Had death, upon his ghastly horse reveal'd,

From his throat-rattling trump a summons sounded,

Not more appallingly its blast had peal'd

Upon the nation's ear;—awe struck, astounded,

Men strive in vain their secret fears to smother,

And gaze in blank dismay on one another.

Now are all cares absorb'd in that of health.

Hush'd is the song, the dance, the voice of gladness,

While thousands in the selfishness of wealth,

With looks of confidence, but hearts of sadness,

Dream they can purchase safety for their lives,

By *nostrums*, drugs, and quack preventatives.

The wretch who might have died in squalid want,

Unseen, unmourn'd by our hard-hearted blindness,

Wringing from fear what pity would not grant,

Becomes the sudden object of our kindness,

Now that his betters he may implicate,

And spread infection to the rich and great.

Yet still will wealth presumptuously cry,

“What though the hand be thus outstretched ;
It will not reach the lordly and the high,

But only strike the lowly and the wretched,
Tush ! what have we to quail at ? Let us fold
Our arms, and trust to luxury and to gold.”

They do belie thee, honest Pestilence !

Thou’rt brave, magnanimous, not mean and dastard ,
Thou’lt not assert thy dread omnipotence

In mastering those already overmaster’d
By want and wo—trampling the trampled crowd,
To spare the unsparing, and preserve the proud.

Usurpers of the people’s rights ! prepare

For death by quick atonement. Strong-hearted
Oppressors of the poor ! in time beware !

When the destroying angel’s shaft is darted
’Twill smite the star on titled bosoms set,
The mitre pierce, transfix the coronet.

Take moral physic, pomp ! not drugs and oil,
And learn, to broad philanthropy a stranger,
That every son of poverty and toil

With whom thou sharest now an equal danger,
Should as a brother share, in happier hours.
The blessings which our common Father showers !

O thou reforming cholera ! thou’rt sent

Not as a scourge alone, but as a teacher,
That they who shall survive to mark th’ event

Of thy dread summons, thou death-dealing preacher !
By piety and love of kind may best
Requite the love that snatch’d them from the pest !

N. Y. Atlas.

THE ANATOMY OF THE HUMAN BODY.

THE constituent parts of the human, or any animal body, are, briefly, solids and fluids. The solids consist of fibres, membranes, arteries, veins, lympheducts, nerves, glands, excretory vessels, muscles, tendons, ligaments, cartilages and bones, to which may be added the hair and nails.

Fibres, appear to be simple threads of the minutest blood vessels, or nerves, or both.

Membranes, are compages of fibres loosely expanded to cover or line the different parts of the body.

Arteries, are tubes that arise from the ventricles of the heart, and thence dividing into branches distribute the blood to every part of the body.

Veins, are tubes which collect, and return the blood from the extremities of the arteries to the heart.

Lympheducts, are fine pellucid tubes to carry lymph from all parts, especially the glands, which they discharge into the larger veins, and into the vessels called vasa lactea.

Nerves, are fascicula, (bundles,) of cylindrical fibres which arise from the different parts of the brain, (medulla oblongata, and medulla spinalis,) and terminate in all the sensitive parts, they are the immediate organs of all sensation.

A gland secretory, is composed of an artery, vein, lymphatic, excretory duct, and nerve. The use of glands is to secrete fluids from the blood for diverse uses.

Excretory vessels, are either tubes from glands to convey the secreted fluids to their respective places, or vessels from the small guts, to carry chyle (the milky juice of the aliment) to the blood vessels.

Muscles, are distinct portions of flesh, which by contracting themselves, perform the various motions of the body.

Tendons, (the cords) appear to be the same fibres of which the muscles are composed, but more closely connected, that they may possess less space in a limb, and be inserted in less space in a bone.

Ligaments, are bodies of fibres closely united, either to bind down the tendons, or give origin to the muscles, or tie together such bones as have motion.

Cartilages, are hard elastic bodies, smooth and insensible, their use is to cover the ends of the bones that have motion to prevent their attrition, (wearing,) &c.

Bones, are firm parts to sustain and give shape to the body.

The fluids, are the blood, the lymph, a tasteless crystalline liquid absorbed from the surface of all the internal parts; and emptied by the lymphatic vessels into the thoracic duct; and *chyle* the milk like liquid, separated from the food in the stomach and bowels, (called chyme.) The chyle is carried into the thoracic duct, thence to the heart, and is there converted into blood.

There are many other fluids, named as they differ in consistence, or as the parts are various from which they are derived, they are the tears, the urine, the ropy matter from the eyelids, the mucous from the mucous membranes, perspiration, the synovial fluid contained within the joints, &c. &c.

The examination of brute animals, &c. in order to illustrate more clearly the structure and functions of man, is called **COMPARATIVE ANATOMY.**

Anatomy is divided into nine parts.

Osteology, or doctrine of the Bones,	
Syndesmology,	Ligaments,
Myology,	Muscles,
Bursalogy,	Burse Mucose,
Angiology,	Vessels,
Neurology,	Nerves,
Adenology,	Glands,
Splanchnology,	Viscera,
Hygology,	Fluids.

OF THE BONES.

The bones are composed of animal earth and gluten, which support and form the stature of the body, defend its viscera, and give adhesion to its muscles, (pronounced mussels.) The substance is compact in the bodies of the long bones; spongy in the ends, and reticular, or cancellated, (spongy,) in all the cavities that have marrow. The long and irregular shaped

bones are divided into a body and extremities ; and flat bones into body and margins.

Bones are named, some from their situation, others from their figures, some from their use, &c. Processes and cavities are also named from their figure, use, &c.

When the bones are deprived of their soft parts and hung together by wire, the whole is termed an *artificial skeleton* : when they are kept together by means of their ligaments, it is called a natural skeleton.

The whole number of bones in the human body are two hundred and forty eight. These vary sometimes in number, as there are more or less, very small and unimportant bones found about the joints of the thumb and great toe, eight of these are reckoned in the above enumeration ; they are called *sesamoid bones*.

OF THE FORMATION OF BONES.

Ossification, or the formation of bone, is a specific action of small arteries, by which bony (ossific) matter is separated from the blood, and deposited where it is required.

The first thing observable, where bone is to be formed, is a transparent *jelly*, which becomes gradually firmer, and is formed into *cartilage*. The cartilage increases to a certain size, and then as ossification increases, and advances, the cartilage vanishes. The cartilage is gradually taken away by the absorbents, and the bony matter is deposited in its place. The growth of bone is extremely rapid in the child before birth, slower after birth, and is not completed in the human body till about the twentieth year. Ossification in the flat bones, always begins from the *central point*, and sends out the bony fibres, until they meet with those from other points, or the edges of the adjoining bone.

In long bones a *central ring* is formed in the body of the bone, and afterwards in the heads. The *central ring* of the body sends its long fibres towards the head and extremities of the bones. The head and extremities at length come so near the body as to be separated only by a cartilage, which becomes gradually thinner until the twentieth year. Ossification begins in the centre of all the round bones.

The bones of the child are very imperfect. The extremities and processes are almost all connected to the body of the bone by cartilage. These portions are called *EPIPHYSES*.

The cranium is connected together by one firm, and almost cartilaginous membrane. On the anterior part of the head, (cranium,) between the bone of the forehead, and bones of the side of the head, is a membranous space, called the *anterior frontanel*, and a similar, but a smaller one, on the back of the head, termed the *posterior frontanel*.

The teeth are partly formed, and are placed in a double row, one of which is shed in early life. All the cavities are much more shallow than in the adult, and many of the flat bones are in two or more pieces, and the bones of the back and neck have their processes united to them by cartilage.

SUTURES AND BONES OF THE ADULT, CRANIUM, OR SKULL.

On viewing the superior and external part of the cranium, several lines are discovered running across the head, separating the bones of which it is composed: they come together with rough edges, like saw teeth (called zigzag,) these lines are called sutures. Those that follow have proper names, and others that occur derive their names from the bones they surround.

Coronal suture, extends from one temple across over the head to the other temple; it unites the frontal bone to the two parietal bones.

Occipital, or lambdoidal suture, comes from behind one ear upwards across to the other, it unites the occipital bone to the two parietal bones.

Sagittal suture, extends upon the crown from the back suture (lambdoidal) to the front suture, (coronal) uniting the two parietal bones together.

Squamous, or spurious sutures, are one on each side of the skull extending from the temple backward like an arch, uniting the temporal bones to the lower side of the parietal.

Transverse suture, runs across the face through the bottoms of the orbits of the eyes.

There are also observable several prominences upon the upper part of the skull, one immediately over each eye in the frontal bone, one on each side of the head, in the parietal bones, and one at the lower, and back part of the head in the occipital bone. These are the points at which the formation of bone was begun.

On the internal surface the sutures are seen in the form of lines, not dovetailed, and there are a number of grooves upon the upper and internal part of the cranium, in arborescent form; they are made by the spinous arteries of the duramater.

The bones forming the upper part of the skull, have an external and internal table that are of a compact structure, between which is a spongy substance called the *Meditulli*, or *diploe*.

The internal surface of the basis of the cranium is divided into eight *depressions* adapted to the lobes of the brain. The two first are immediately over the orbits of the eyes, and are separated by an eminence above the root of the nose called *crista galli*. On each side of this eminence is a number of holes, which make the bones appear like honey comb, through these pass the olfactory nerves, they are called *foramina cribrosa*.

Forward of the *crista galli*, is a small hole called the *foramen cecum*; and back of the *crista galli*, are two round holes near each other, going to the bottom of each orbit; through these pass the optic nerves, they are called *foramina optica*. Beyond these, is a small cavity, which will admit the end of the finger, surrounded by four clinoid processes, the cavity is called the *sella turcica*, (Turkish saddle,) and contains the pituitary gland.

Under each anterior process, is the *foramen lacerum orbitale superius*, through which the third, fourth, first branch of the fifth, and the sixth pair of nerves and the ophthalmic artery pass. Proceeding backwards, there is a round, then an oval hole, the first is the *foramen rotundum* through which the second branch of the fifth pair of nerves passes, the other the *foramen ovale*, for the passage of the third branch of the fifth pair of nerves. Near the *foramen ovale* is the *foramen spinosum*, through which the spinous artery of the dura mater enters.

Between the *foramen ovale* and the posterior clinoid process, on each side of the *sella turcica*, there is a rugged aperture, the *carotid canal*, which is partly filled up with cartilage, and is for the entrance of the carotid artery and the exit of the great intercostal nerve.

A projection of bone next presents itself, it is called the *petrous portion* of the temporal bone, and has an oval opening, through which the nerve for the organ of hearing, and the facial nerve, enter. Below this is an irregular oval

opening, formed by the junction of the of the occipital with the temporal bone, this is called *foramen lacerum in basi cranii*, through the anterior part passes the eighth pair of nerves, and the posterior part transmits, the blood from the lateral sinus of the dura mater, into the jugular vein.

Backwards from this proceeds the cuneiform process of the occipital bone, which is hollowed for the reception of the medulla oblongata. Through this is a large opening called the *foramen magnum occipitale*, through this passes the spinal marrow, the vertebral arteries, the accessory nerves of Willis; and a process of the second vertebra of the neck lies in its anterior part. Between this and the foramen lacerum in basi cranii, is the *foramen condyloideum anterius*, which gives passage to the lingual, or nerves of the tongue.

Beyond the great occipital foramen is a crucial eminence, to which processes of the dura mater are attached, the horizontal eminence separates the two superior occipital cavities from the two inferior.

FRONTAL BONE, OR, OS FRONTIS.

Makes the upper and fore part of the head, its lower parts compose the orbits of the eyes. It is uneven upon the inside, which unevenness helps to keep the brain steady, and from its middle externally, goes a process to which is joined the bones of the nose. On this bone, just above the os ethmoides, is a small hole through which runs a vein into the longitudinal sinus, and on the upper edge of each orbit, a small notch through which nerves and an artery pass to the forehead; it has also a small hole near the os planum, through which passes a branch of the fifth pair of nerves. In the substance of this bone near the nose are two, some times five, sinuses (cavities) which open into the nose. These sinuses, and internal unevenness of this bone render it somewhat dangerous to apply the trephine on the middle and lower part of the forehead. This bone is in two parts, in the young child.

PARIETAL BONES, OR OSSA PARIETALIA.

These are two bones which compose the upper and lateral (side) parts of the skull. On the inside they are remarkably imprinted by the arteries of the dura mater.

OS ETHMOID BONE.

This is a small bone about two inches in circumference, seated in the fore part and basis of the skull, and is almost surrounded by the *as frontis*. It is full of holes like a sieve, through these holes the olfactory nerves pass to the nose. In its middle arises the process called *crista galli*, and on the opposite side a thin one that in part divides the nostrils.

OS SPHENOID.

This is the most difficult bone to describe, that is in the human body, and there can be but little or no idea formed of it without seeing it separated from the other bones of the skull. It is situated in the basis of the cranium, extending underneath from one temple across to the other. It is generally compared to a hat with its wings extended. Its principal cavity is the *sella turcica*, and many of the foramina before mentioned, are in this bone. This bone is connected with all the bones of the cranium, with the frontal, the two parietal, the ethmoid, and the two temporal by harmony, the occipital by synostosis; to the two cheek bones, the two bones of the upper jaw, and the two palate bones by harmony, and to the vomer by gomphosis. Its use is to form the basis of the skull, and to contain the middle lobes of the brain.

OSSA TEMPORUM.

These two bones are situated, one on each side of the head, below the parietal bones they have each at their back parts (may be felt just back of the ear,) one large spongy process, called *mammillaris*, or *mastoides*, and from the lower parts of each, a process which joins the *ossamalarum*, named *jugal* or *zygomatics*. These form the high bones of the cheeks.

OSSA PETROSA,

Are by some considered as distinct, by others as parts of the above bones. They lie betwixt the above bones and the occipital bone. The description will be given, when speaking of the organs of hearing.

OS OCCIPITAL, OR THE OCCIPITAL BONE.

This makes all the back part of the skull. It is bounded by the sphenoidal, temporal, petrosal, and parietal bones, it

has two small apophysis, by which it is articulative to the spine, near these apophyses are two small foramina, which are the ninth of the skull, through these pass the ninth pair of nerves, and between these is the tenth or great foramen, through which the medulla oblongata desends into the spine. The cervical arteries enter, and the carvical veins pass out.

This bone is made strong, and covered well with muscles, because we can least defend this part, and blows here are of worse consequence than on other part of the brain, immediately underneath are mortal.

These ten bones compose the cranium, contain the brain, and defend it from external injury.

BONES OF THE FACE.

They are fourteen in number.

OSSA NASI, OR BONES OF THE NOSE.

These make the upper part of the nose forming that kind of arch which is fittest to sustain such injuries as the nose is most exposed to.

OSSA MALARUM,

Compose the lower, and outer parts of the orbits of the eyes, they have each a short process which joins the processes jugales of the temporal bones, and assist in forming that arch (called jugalia) which is the prominence of the cheeks.

OSS UNGUES.

Are seated immediately below the os frontis, towards the nose in the orbits of the eyes. Between each of them, and the upper jaw is a foramen, as large as a goose quill into which the *puncta lachrymalia* lead, to carry superfluous moisture from the eyes into the nose.

MAXILLA SUPERIOR, OR UPPER JAW BONE.

THIS bone is in two pieces, being divided by a suture that is scarcely ever obliterated. It has two processes which join the frontal bone, and make part of the nose, and an other which joins the cartilage, that separates the nose. It makes part of the orbits of the eyes. Its lower side makes, all the face under the cheeks, eyes, and nose to the mouth, and two

thirds of the roof of the mouth. Below the orbits, and behind the dentes incisores are three holes, and betwixt the back grinding teeth and the eyes are two great sinuses, called the *antrum maxillare*, or *antrum highmori*, or *sinus maxillaris pituitarius*, which open into the upper part of the nose. In the lower edge are the sockets (alveoli) for the teeth. Part of these cavities, next the nose, are only membranes. Imposthumations sometimes happen in these cavities. This is easily cured by drawing out the last tooth but one or two, and making a perforation through its socket, into the antrum so as to admit the free discharge of the matter.

OSSA PALATI,

ARE two small bones that make the back part of the roof of the mouth, and a small part of the bottom of each orbit. Through this bone are two foramina, which transmit arteries and nerves to the palate.

OS VOMER.

THIS is seated between the bones of the palate, and the the spheroidal bone. Its fore part is spongy and is continued to the middle cartilage of the nose. This bone and cartilage are the septum nasi, (the separation betwixt the nostrils.)

OS SPONGIOSUM,

Is chiefly the spongy lominæ in the nose, of the os ethmoides, to which it always adheres.

MAXILLA INFERIOR, OR UNDER JAW BONE,

Is articulated with loose cartilage to the temporal bones, by two processes, named condyloides. Near these arise two more called coronals, and at the inside of the chin is a small rough process. In the inside of this bone, under each process coronalis, is a large foramen, which runs under the teeth, and passes out near the chin, in this hole the vessels pass that belong to the teeth. In the upper edge of the jaw are the sockets for the teeth, which seldom exceed sixteen in each jaw.

The teeth, the four forward teeth are called incisores, the next one on each side canini, the rest molares; the two last of the molares are named dentes sapientiae, because they ap-

pear about the years of discretion. The incisors and canini have only one single root; the eight first of the molares, two; the rest, some three, some four.

Each of these roots has a foramen, through which pass an artery, vein, and nerve, which is expanded in a fine membrane that lines the cavity in each tooth; these are the seat of the toothache.

OF THE BONES OF THE TRUNK.

THE trunk is divided into the spine, chest, loins, and pelvis.

Spine, the long column, or pillar, which extends in the posterior part of the trunk, from the occipital bone to the os sacrum. This is composed of twenty-four bones called vertebra, viz. seven of the neck, twelve of the back, and five of the loins. Each vertebra is divided into a body and seven processes, one spinous, two superior oblique, two inferior oblique, and two transverse processes.

The cavities are the spinal canal which contains the spinal marrow, and the lateral foramina of the vertebra. Each of these is three bones in the child. The first bone of the spine is connected with the occipital bone by cartilage so as to admit only of the motion backwards and forwards, as in nodding. The second is united with the first so as to admit of a rotatory motion, and to the occipital bone by an intervening ligament; this joint of the second vertebra, admits the turning of the head around to either side. The bodies of the vertebra are connected with one another by a peculiar intervertebral substance; and posteriorly by a yellow elastic ligament and by their oblique processes. The use is to support the head and trunk, and to contain and defend the spinal marrow.

Cervical vertebra, or bones of the neck. The first is called atlas, is without body, or processes, but forms an arch, or ring which surrounds the dentiform process of the second vertebra. It has upon its upper surface two depressions, that receive the processes of the occipital bone. The second vertebra is termed epistropheous, or dentatus, from a tooth-like process which is surrounded by, and attached to the above bone, and forms that joint which admits the rotation of the head. The transverse processes of the remaining vertebra, have a peculiar foramen for the passage of the vertebral arteries.

The Dorsal Vertebra, have at the sides of the bodies a de-

pression, and a superficial one in the points of the transverse process for the attachment of the great and little heads of the ribs.

The Lumbar Vertebra, are much larger than the dorsal (those of the back) and the transverse process have no depression.

Os Sacrum is connected with the last bone of the loins, and is of a triangular figure, and bent forwards. It has two superior oblique processes. It has four pair of-external and internal foramina, and five middle canals, the canals and foramina of these bones, and two large holes between each vertebra, contain the spinal marrow, and let the nerves pass out.

Os Coccygis, or crooper bone, is joined superiorly to the above bone and is the last of this column of bones.

RIBS, OR COSTAE.

THESE are twenty-four in number, twelve on each side, the seven uppermost are called true ribs, because their cartilages reach to the breast bone, and the five lowest are called false ribs. They stand oblique from the back to the breast bone, and are semicircularly shaped, having a great head which is connected to the bodies of the dorsal vertebra, a small neck, then a *lesser head*, which is joined to the transverse process of the same vertebra. It has a longitudinal groove on the under side, in which runs the intercostal artery. They are connected anteriorly with the sternum by means of cartilage. Their use is to form the thorax, or chest, and defend the vital viscera, and give adhesion to muscles.

STERNUM, OR BREAST BONE.

THIS is situated in the anterior part of the thorax, between the true ribs, it is shaped somewhat like a dagger, has a large jugular sinus at the upper and inner part, and two clavicular sinuses for the attachment of the outer ends of the collar bones.

OS INNOMINATUM. HIP BONE.

IN young persons this is composed of three bones on each side; the upper is named ilium, or haunch bone; the lower and posterior, os ichii, being the bone on which we sit; and

the anterior, or that bone which passes across at the lower part of the belly, is called os pubis.

CAVITY OF THE PELVIS.

SITUATED in the lower region of the trunk, in shape somewhat like a barber's boson. It is composed of four bones; the os innominata on each side, and the os sacrum, and os coccygis posteriorly. It contains the bladder the rectum, &c.

BONES OF THE UPPER LIMB.

THESE are the same on each side.

Clavicle, or collar bone, is connected at one end to the breast bone, with a loose cartilage, and at the other end to the acromion process of the shoulder blade. Its chief use is to keep the shoulders from coming near together.

Scapula, or shoulder blade, is situated in the upper and lateral part of the back; of a triangular shape, and has a spine or ridge in the middle of the external surface. The acromion is the anterior termination, and that which stands out opposite to the acromion, is called the coracoid process. Its principal cavity is the *articular*, or glenoid cavity, which receives the head of the humerus.

OS HUMERI, HUMERUS OR BRACHIUM,

Is situated between the shoulder blade and forearm. The head is rounded, and is received into the joint of the shoulder, the neck is immediately below the head, near the neck is the *greater tubercle*, which receives the supraspinatus muscle, and near this is the lesser tubercle, which has fixed to it the subscapularis muscle. On the lower end of this bone are the external and internal condyles, which give origin to muscles, and near the end, posteriorly, a cavity or fossa, which receives the olecranon, or anconoid process of the ulna. It is connected at its superior end with the scapula, at its inferior, with the cubit and radius.

CUBIT, OR ULNA.

THIS bone is situated upon the inside of the forearm toward the little finger. It reaches from the humerus to the wrist, being thicker above than below. It has upon the upper end the *anconoid process*, which unites with the hume-

rus, and makes the point of the elbow. This is the chief support of the forearm.

RADIUS,

Is situated on the external side of the forearm, toward the thumb ; its use is to assist in forming the forearm. It is connected to the humerus by ginglymus, to the cubit by an interosseous ligament, and trochoides ; and to the carpus (wrist) by arthrodia.

CARPUS, OR WRIST.

THE wrist is composed of eight small bones, arranged in two rows, one of which is attached to the bones of the forearm, the other to the body of the hand. Names, beginning with the row next to the forearm, and with the external bone in each row ; os scaphoides, lunare, cuneiforme pisiforme, os trapezium, trapezoides, magnum, and unciforme.

Metacarpus, is situated between the wrist and fingers, composed of five bones, one of the thumb, and four of the fingers, these form the middle part or body of the hand.

Fingers, are situated at the inferior extremity of the metacarpus ; each finger has three bones, which are called phalanges. *The thumb* is composed of two bones.

BONES OF THE LOWER LIMB.

Os Femoris, or thigh bone, has a round head at its upper end, which is received into the socket (acetabulum) of the os innominatum. It has a neck upon which the head stands, a large eminence below the neck, called the *great trochanter*, and a little lower upon the opposite and inner side, another eminence, which is the lesser trochanter, and a rough line on the body of the bone, called *linea aspera*. On the lower end are the external and internal condyle, and between them a deep notch, for the passage of the great artery, vein, and nerve of the leg. It is connected to the acetabulum of the os innominatum by enarthrosis, and to the tibia and patella by ginglymus.

Tibia, or shin bone, is situated in the inside of the leg, it has two articular cavities in the upper head for the reception of the condyles of the thigh bone ; it is connected at the up-

per end with the thigh bone, and knee pan by ginglymus, to the fibula by syneurosis, and to the astragalus by arthrodia.

Fibula is a small bone on the outer side of the leg, it has a head at the upper end, which joins the tibia, and at the lower end the malleolus externus, or outer ankle, At the upper end it is connected with the tibia, and at the lower end with the astragalus.

Patella, rotula, or knee pan, is situated on the fore part of the knee, in figure resembling a heart. Its use is to strengthen the joint, and serve as a pulley for the extensor muscles of the tibia.

The foot, is composed of the *tarsis*, situated below the bones of the leg, which consists of seven bones, placed in a double row, in the first row are the astragalus, and os calcis, in the second row, the os naviculare, os cubiforme, and three cuneiform bones, which are placed near each other; and of the *metatarsus* situated between the tarsis and toes, which forms the back and sole of the foot; and of the *toes*, the great toe is composed of two bones, and each toe of three called phalanges.

Sesamoid bones, are situated in the joints, under the phalanges of the thumb and great toe.

PERIOSTEUM,

Is a membrane which invests the external and internal surface of all the bones, except the crowns of the teeth. It is named, *pericranium* on the cranium, *perichondium* where it covers cartilages, *peridesmium* when it covers ligaments, and *periorbita* on the orbits. Its use is to distribute vessels and nerves on the external and internal surfaces of the bones.

OF THE CONNEXION OF BONES.

CONNEXION so as to admit of motion, is called *diarthrosis*. So as to admit of no motion, *synarthrosis*; and when connected by an intervening substance, the union is termed symphysis.

Enarthrosis, when the round head of one bone is received into the deep cavity of another, so as to admit of motion in every direction.

Arthrodia, when the round head of a bone is received into a

superficial cavity of another, so as to admit of motion in every direction.

Ginglymus, when the motion is only flexion and extension:

Trochoides, when one bone rotates upon an other, as the radius upon the ulna, in turning the hand.

Amphiarthrosis, very obscure motion.

Sutures, when the union is by dentiform margins.

Harmony, connexion by rough, not dentiform, margins.

Gomphosis, one bone fixed within another, like a nail in a board, as the teeth in the alveoli of the jaws.

Synarodrosis, union by intervening cartilage.

Syssarcosis, when a bone is connected with another by means of an intervening muscle.

Syneurosis, when bones are united by an intervening membrane.

Syndesmosis, union by an intervening ligament.

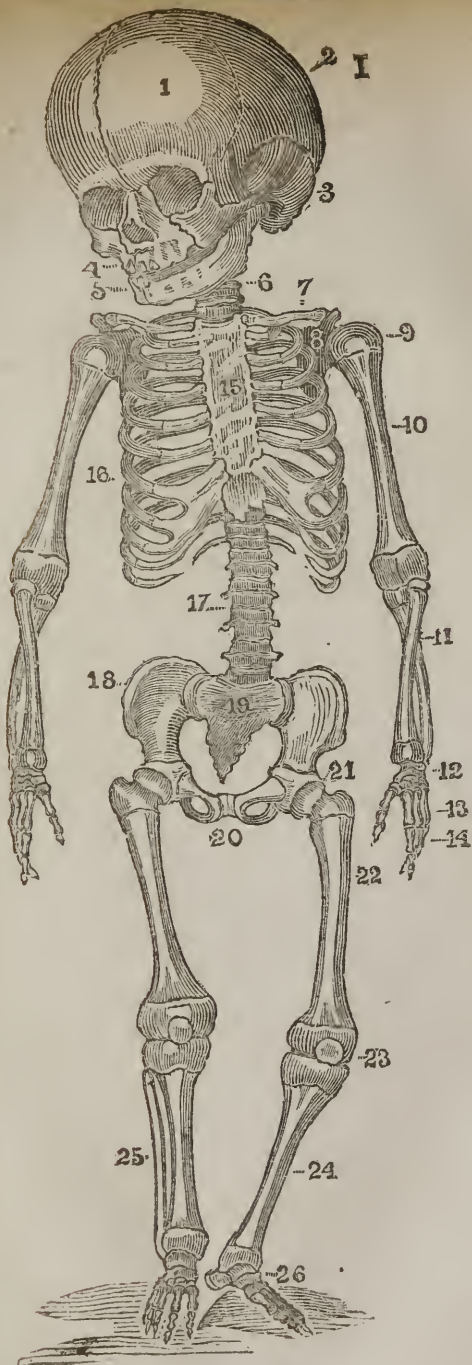
Synostosis, when two bones, originally separated, are united by bony matter.

EXPLANATION OF PLATE I.

The skeleton of a child twenty months old, in which the bones differ in shape, (being not so well proportioned,) from those of an adult.

Fig. 1. The os frontis.

2. Os bregmatis, or parietal bone.
3. Os temporis, or temporal bone.
4. Os maxilla superior, or upper jaw bone.
5. Os maxilla inferior, or lower jaw.
6. Vertebra of the neck.
7. Clavicle, or collar bone.
8. Scapula, or shoulder blade.
9. Head of the os humerus.
10. Body of the os humerus.
11. Radius and ulna, or the forearm.
12. Wrist, which is composed of the eight bones of the carpus.
13. Metacarpus, or bones of the hand.
14. Fingers, digitis, or phalanges.
15. Sternum, or breast bone.
16. Ribs, or costa.
17. Lumbar vertebra, or loins.
18. Os innominatum, or haunch bones.
19. Os sacrum. The lower part of which is a separate bone; the os coccygis.
20. Os pubes, or share bone.
21. The head of the os femoris, the neck, and the eminence called the greater trochanter.
22. Body of the os femoris.
23. Patella, or knee-pan.
24. Tibia, or shin bone.
25. Fibula, or small outer bone of the leg.
26. The seven bones of the tarsus, which join the bones of the leg and the metatarsal bones of the foot.



II



CARTILAGES AND LIGAMENTS.

EVERY part of a bone which is articulated to another bone for motion, is covered or lined with a cartilage, as far as it moves upon, or is moved upon by another bone in action, the cartilage being smoother and softer than bone, renders the motions more easy, and prevents the bones wearing each other in their actions. There is a loose cartilage in each articulation of the lower jaw on which the condyloid process moves; and in the joint of the knee are too loose, almost annular cartilages, thick at their outer edges, and thin at their inner ones, which make the greatest part of the two sockets in this joint.

Some of the cartilages serve to give shape to parts, as those of the outer ear, the lower part of the nose, and the edges of the eye-lids. They support and give shape to the parts, without being liable to be broke, as they would have been, if formed of bone.

Ligaments serve to tie together such bones as have motion, and their thickness and strength is proportioned to the several joints, and their lengths are no more than sufficient to allow a proper quantity of motion. The ligaments surround the joints also, and are there called capsular, or purse-like ligaments, which contain the mucous of the joints, and all the bones and joints are furnished with ligaments which run round and across them, securing them effectually from separation or dislocation.

MUSCLES,

ARE the natural divisions of the flesh into distinct and certain portions, which constitute the moving powers, and perform the several motions of the body, by contracting themselves, and thereby bringing the parts to which they are fixed nearer together. The immoveable, or least moved part, or that part nearest the trunk of the body, is usually called its origin, and the other its insertion, but muscles that have their two ends equally liable to be moved, may have either called their origin or insertion. The ends that are attached to the bones are called the head and tail, and the rest is called the body. Each muscle is made up of a number of small fibres.

The muscles are named according to the arrangement of their fibres, or from their action, or from their origin and in-

sertion, and from their figure or situation. Thus when the fibres go in the same direction it is said to be a *simple* muscle; when they are in rays, a *radiated* muscles, when arranged like the plume of a feather, a *penniform* muscle; and when two penniform muscles are contiguous, a *compound penniform*.

Muscles sometimes surround certain cavities of the body forming a thin lamina as in the intestinal canal, bladder, &c. Those which receive names from their origin, figure, situation, &c., are very numerous, and unimportant in a work of this kind; and I shall therefore pass over all except those shown in the plate, which will be found sufficient it is presumed, to give a perfect idea of this wonderful part of mechanism. Muscles that concur in producing the same action, are called *congeres*, and those that act contrary to each other *antagonistea*. They are furnished with arteries, veins, and absorbants, and with nerves.

Error in Pagination:

**P. 359-360, 371-372, 387-388,
425-426 Omitted in numbering**

EXPLANATION OF PLATE II.

Fig. 1. *Musculus frontalis, or occipito frontalis*, has four fleshy bellies, and arises behind each ear from the os occipites, and soon becoming tendinous, passes under the hairy scalp to the forehead, where it becomes broad and fleshy, adhering to the skin, and is inserted into the upper part of the orbicular muscles of the eye lids, into the os frontis near the nose, and into the bones of the nose. When it acts from the back part, it pulls the skin of the forehead upward, and wrinkles it transversely, in some persons it pulls the hairy scalp backward. When the forepart of it acts, it draws the skin with the eye brows downward, and towards the nose when we frown.

2. *Temporalis*, arises from the frontis, parietale, sphenoides, malae, and temporal bones; and passing under the os jugale, is inserted externally into the coronal process of the lower jaw, which it pulls upward. The motion of this muscles can be felt by placing the hand on the temple when chewing.

3. *Orbicularis*, surrounds the eye-lids on the edge of the orbit, and is fixed to the transverse suture at the great corner of the eye, it shuts the eye-lids, as in winking.

4. *The paroted gland* with its duet, which passes through the buccinator muscle into the mouth.

5. *Mastoideus, or Masseter*, arises by strong, tendinous, and fleshy fibres, which run in different directions, from the upper jaw bone, and zygoma. It is inserted into the angle of the lower jaw, and pulls it upward, and a little backward and forward.

6. *Zygomaticus*, arises from the forepart of the os zygoma or malea (the prominent bone of the cheek,) it runs obliquely downwards, and is inserted into the sphincter at the corner of the mouth; it draws the corner of the mouth upward.

7. *Elevator labii superioris proprius*, arises from the bone of the upper jaw, and a small portion from the os malea, and passing down by the side of the nose, is inserted into the upper part of the sphincter oris. This raises the upper lip, and helps to dilate the nostrils.

8. *Elevator labiorum communis*, arises from a depressed

part of the upper jaw under the middle of the orbit, and is inserted into the sphincter oris near the corner of the mouth, it draws the corner of the mouth upwards.

9. *Depressor labicrum communis*, arises laterally from the lower jaw near the chin, and is inserted into the sphincter opposite to the former, it pulls down the corner of the mouth.

10. *Sphincter oris, or orbicularis oris*. This is formed of all the muscles that move the lips, its use is to shut the mouth, by contracting and drawing both lips together.

11. *Depressor labii inferioris proprius*, arises broad and fleshy, intermixed with fat, from the lower jaw at the chin, runs obliquely upwards, and is inserted into the edge of the under lip; pulls the under lip downwards.

12. *Buccinator*, arises tendinous and fleshy from the lower jaw, fleshy from the upper jaw, and process of the sphenoid bone, and is inserted into the angle of the mouth, use, to draw the angle of the mouth backwards and outwards, and to press the cheeks inward, by which the food is thrust between the teeth.

13. *Sterno-hyoidei*, arises thin and fleshy, from the cartilaginous extremity of the first rib, the upper and inner part of the breast bone, and from the clavicle where it joins the sternum, it pulls the os hyoides downwards.

14. *Coraco-hoideus*, arises from the upper edge of the scapula, and is inserted, tendinous, into the basis of the os hyoides, this draws the os hoides downward, and a little backward.

15. *Mastoideus*, arises from the sternum and clavicle, and is inserted into the mammillary process of the temporal bone. It pulls the side of the head towards the breast and turns the head towards the contrary shoulder.

16. *Trapezius*, arises from the os occipitas, from the spinal process of the last vertebra of the neck, and the ten uppermost of the back, and is inserted into one third of the clavicle next the scapula, and almost all the back part of the acromion, this draws the shoulder blade directly backward.

17. *Pectoralis*, arises from the clavicle, sternum, and cartilages of the ribs, and is inserted into the os humerus. The use of it is to draw the arm forward.

18. *Deltoides*, arises opposite to the insertion of the trapezius, and is inserted, tendinous near the middle of the os humerus, which bone it lifts directly upwards.

Tongue. The tongue is a muscular body, moveable in every direction, it is divided into basis, body, sides, and apex or point. It is connected with the os hyoides, bottom of the cavity of the mouth, and lower jaw. It is supplied with nerves from the fifth, eighth, and ninth pair, which terminate most abundantly in the papilla, on the sides and point of the tongue. The *lingual* arteries or arteries of the tongue, are branches of the external caroted.

OS HYOIDES,

Is situated in the fauces, between the basis of the tongue and larynx, its figure is semilunar, it serves for the adhesion of the root of the tongue, for deglutition and for a point of adhesion of many muscles.

The *voluntary motions* are such as proceed from an immediate exertion of the powers of the will. The *involuntary motions* of muscles are performed by organs seemingly of their own accord; as the contraction and dilatation of the heart, arteries, intestines, &c. The *mixed motions* are those which are in part under the control of the will, but which generally act without our being conscious of it, as in the muscles of respiration, and of the eye-lids.

When a muscle acts it becomes shorter and thicker, and its origin and insertion are drawn towards its middle. The sphincter muscles (sphincter muscles are such as surround orifices, as the mouth, anus, &c.) are always in action, and so are antagonist muscles. When two antagonist muscles move with equal force, the part remains at rest, but if one remains at rest, while the other acts, the part is moved toward the centre of motion.

When a muscle is divided, it contracts. And if stretched to a certain extent, it contracts, and acquires its former dimensions, as soon as the force is removed. This is called *vis mortua*, or the tone of the muscle. When a muscle is wounded, or touched, it contracts independent of the will; this is called irritability, or *vis insita*.

When a muscle is stimulated, through the medium of the will, or by any foreign body, it contracts in proportion as the stimulus applied is greater or less. The contractions are different, according to the purposes to be served: thus the heart contracts with a jerk; the urinary bladder, &c. slowly and uniformly; relaxation alternates with contraction. There

are about two hundred pairs of muscles, or two hundred on each half of the body, and eight or ten that are single, each of them is surrounded by a very thin and delicate covering of cellular membrane, which encloses it like a sheath. The names of all these muscles, would be very difficult to retain; and there are but few physicians, if any, that even try to remember any, except a few of the most important ones.

Tendons are the white and glistening extremities of the muscles, and as before observed, appear to be the same fibres of which the muscle is composed, but more closely united that they may possess less space in a limb, and be inserted in less room into a bone.

EXTERNAL PARTS AND COMMON INTEGUMENTS.

THE hollow on the middle of the thorax, under the breast is called *scrobiculus cordis*. The middle of the abdomen for about three fingers breadth above and below the navel, is called the umbilical region; the middle part above this epigastrium; below the umbilical region, down to the ossa ilia and os pubis, hypogastrium; and on each side of the epigastrium under the cartilages of the lower ribs, hypochondrium.

Cuticle epidermis, or scarf skin, is the insensible membrane which is raised by blisters in living bodies, and extends over every part of the true skin, except where the nails are. It defends the true skin, and preserves it from wearing, this grows the thicker the more the part is used, as on the soles of the feet and palms of the hands.

Rete Mucosum, a mucous substance disposed in a net like form, between the epidermis and cutis, this gives the difference of color in Europeans, Ethiopians, &c.

Cutis, or true skin, a thick membrane immediately beneath the rete mucosum, covering the whole body, in this membrane the nerves terminate so plentifully, for the sense of touch, that the finest pointed instrument can prick nowhere, without touching some of them.

Cellular, or adipose membrane, is formed of small membranous cells, which are generally filled with fat. It is situated under the cutis, and in many of the soft parts. Its use is to cover and defend the muscles, to unite the soft parts, and to render the muscular fibres flexible. The cells of this membrane communicate throughout the whole body so much that from any one part the whole may be filled with air.

OF PERSPIRATION.

PERSPIRATION is a species of secretion which frees the blood of a quantity of aqueous fluid by the exhalent arteries of the skin.

Insensible perspiration is constantly going on, by which means the surface of the body is kept smooth and moist, it may be detected by placing any part of the skin near a looking-glass, which will become damp. Sensible perspiration or sweat is observed only occasionally.

Ungus, or nails, are horny lamina, to defend the nervous papillæ.

Pili, or hairs, are called capilli on the head, supercilia above the eyes, cilia on the margin of the eyelids, vibrissæ in the nostrils, mastyx on the upper lip, barba on the lower jaw, &c. &c.

OF THE GLANDS.

A GLAND is an organic part of the body, composed of blood vessels, nerves and absorbents, and destined for the secretion or alteration of some peculiar fluid. They are divided into,

1st, Simple glands, which are small hollow follicles, covered with a membrane, and having a duct through which they evacuate the liquor contained in their cavity. 2d. Compound glands, consist of many simple glands, the ducts of which are joined in one. 3d, Conglobate, or lymphatic glands, are those into which the lymphatic vessels enter and from which they go out again. 4th. Conglomerate glands are composed of a congeries of many simple glands, the excretory ducts of which open into one common trunk. And some are named according to their fluid contents, as: mucous glands; sebaceous glands; salivial glands; and lachrymal glands. The fluids which they secrete are various as the saliva (spittle) secreted by the salivary glands, especially by the paroted, which it discharges into the mouth. See plate 2, figure 4. And the tears, the mucous as of the throat, and alimentary canal, the milk, &c. They are numerous in all the soft parts of the body.

OF THE PARTS CONTAINED WITHIN THE CRANIUM.

Dura mater, a thick membrane, that adheres to the inter-

nal surface of the cranium, especially about the sutures. It has a process called, *falx*, or falsiform process, which separates the brain, half to each side, (into two hemispheres); the *tentorium cerebelli*, which separates the upper and forward portion of the brain from the back and lower part, and a septum cerebelli, which separates the two lobes of the cerebellum. Its veins are called venous sinuses, there are twenty two, the principal of which are the *superior* and *inferior longitudinal*, all of them evacuate their blood through the *foramen lacerum* in basa crani, into the jugular veins.

Membrana Arachnoidica, a delicate, and transparent membrane, situated between the dura and pia mater, surrounding the brain. Use, not known.

Pia mater, a thin membrane, firmly united to the convolutions of the cerebrum cerebellum, modulla oblongata, and spinales. Its use is to distribute the vessels to, and contain, the substance of the brain.

CEREBRUM, OR BRAIN,

Is that part of the brain, which possesses all the upper and fore part of the skull. Its upper side is divided into two hemispheres, by the falx of the dura mater, and its lower side is divided into four lobes, it is separated from the cerebellum by a second process of the dura mater. Its substance is cortical and medulary, it has two anterior or lateral ventricles, in each of which are several eminences, and a loose vascular production called the plexus choroides, and a third and fourth ventricle. The digital process, pineal gland, &c. &c. can only be learnt on the subject. Its arteries are from the internal caroteds, and vertebrales, it has no nerves but furnishes nine pair. The veins empty the blood into the venous sinuses of the duro mater.

Cerebellum, or little brain, is situated under the tentorium of the dura mater in the inferior occipital depression, (in the lower and back part of the head,) its vessels are in common with the cerebrum. The brain is the organ of all sense.

Medulla oblongata, is formed by the connexion of the cerebrum, and cerebellum, and its use is the same as the brain.

Medulla spinalis, is a continuation of the medulla oblongata, which desends through the foramen magnum, of the occipital bone into the channel of the spine, and descends to the third vertebra of the loins, in which course it sends out, be-

tween the vertebra, thirty pair of nerves. It finally terminates in a number of nerves called cauda equina, from their resemblance to a horse's tail.

OF THE NERVES.

NERVES are long whitish cords, composed of bundles of fibres, which are the organs of sensation. They arise, nine pair from the brain, and thirty pair from the spinal marrow. The nine pair of the brain are, 1. the olfactory; 2. the optic; 3. oculorum motorii; 4. the pathetic; 5. the trigemini; 6. the abducent; 7. the auditory and facial; 8. the parvagus or great sympathetic nerves; 9. the lingual pair. The thirty pair of spinal nerves are divided into eight of cervical, from the neck; twelve pair of dorsal, from the back; five pair of lumbar, from the loins; and five pair of sacral nerves, from the sacrum. These are for the senses of, touch, sight, hearing, smelling, and taste, and for the motion of the muscles. My limits will not admit of a description of the individual nerves.

OF THE FUNCTIONS OF THE NERVES.

ALL external applications to the body produce changes, which changes are conveyed to the brain, in an unknown manner by means of the nerves only, and sensation is produced; hence all sentient parts are supplied with nerves, even though they cannot be seen by the eye. The senses are distinguished into internal and external.

The internal senses are ideas which the mind, or sensorium commune, forms to itself, and may be produced by the external senses, or they may be excited spontaneously; such are memory, imagination, conscience, the passions, and reasoning.

The external senses are, smelling, seeing, hearing, tasting, and touching.

Smelling, this sense is produced by the effluvia, which are conveyed to the nerves that end in the membrane which lines the nose. The nerves are the olfactory, or first pair of nerves, which are distributed on every part of the pituitary membrane of the nose.

Seeing, is the sensation by which we perceive objects and their visible qualities. The organ of sight is the retina, an expansion of the optic, or second pair of nerves. The object

of sight is the rays of light which strike upon and stimulate the retina. Light emanates from any luminous body, with a very rapid motion, in right lines which are called rays of light, these fall on the pellucid and convex cornea of the eye, by which they are condensed, and pass through the aqueous humor, and pupil of the eye, to the crystalline lens, passing thro' which they are condensed into a focus; this penetrates the vitreous humor, and strikes upon and stimulates the retina upon which they impress the image of the external object, to be represented to the mind through the medium of the optic nerves.

Hearing, by hearing we perceive the sound of any sonorous body. Sound is a tremulous motion of the air produced by striking any sonorous body. Sound is conveyed through the atmosphere, in straight lines which are called sonorous rays. Soft bodies diminish sound, elastic ones increase it. The *portio mollis* of the seventh pair of nerves is the organ of hearing, which is distributed on the membranes within the ear. It is performed in the following manner, the rays of sound arrive at the ear which by its elasticity, and formation concentrates them, and they pass along the external foramen to the *membrana tympani*, which they cause to vibrate. This communicates its vibrations to the *small bones* in the ear, and from the bones, it passes to what is called the *fenestra ovalis*, this communicates its vibrations to the water contained in the *vestibulum* and *semicircular canals*, and causes gentle motion of the nerves contained therein, which communicate them to the brain, where the mind is informed of the presence of sound, and judges of its difference.

Tasting, is made by the application of substances to the nerves of the tongue, and inside of the mouth.

And Feeling, by impressions made on the nerves that are distributed throughout the body.

INTERNAL VISCERA,

Of the parts contained within the Thorax, or Chest.

Pleura, is a fine membrane which lines the whole cavity of the thorax, except on the diaphragm which is covered with no other than its own proper membrane. The back part of it extends over the great vessels; it serves to make the inside of the thorax smooth and equal.

Mediastinum, divides the thorax lengthways, from the

breast bone, backwards, and a little to the left side. It is in two layers, or is double. It hinders one lobe of the lungs from incommoding the other, as lying on one side might do ; and prevents the disorders of one lobe from affecting the other.

The Lungs, or lights, or pulmo, or pulmonary organs. They are composed of two lobes, one situated on each side of the mediastinum. When placed together in their natural position they resemble the hoof of an ox.

Each lung fills completely the cavity in which it is situated. The wind pipe (bronchia) enters the lungs and is divided into innumerable branches, which form the cells of the lungs, into which the air enters, and the blood vessels discharge a large quantity of lymph. It is on the membrane of these cells that the blood vessels of the lungs are distributed. The use of the air's entering the lungs is not well understood, it is unquestionably essential to the formation, or preservation of the blood : and it is instrumental in speech.

The lungs of an animal before it breathes will sink in water ; but if inflated with air they swim in water.

Pericardium, or heart purse, is a strong membrane that covers the heart, its side next the great vessels is partly connected to them, and partly to the basis of the heart. And on the lower side it is inseparably connected with the diaphragm. Its use is to inclose the heart, and keep it in its place, without interrupting its office.

THE HEART.

This is a muscle of a conic figure, with four cavities within it. Two of these are called *auricles*, (deaf ears,) the other two are called *ventricles*.

The right auricle originates from the union of the two vena cava, and consequently receives their blood. The oricles are separated from each other by a partition common to both. In the heart of the child before birth, there is an opening through this septum, called the *foramen ovale*. This is closed after birth. Near this is a large valve called the valve of Eustachius, before this, and near the union of the auricle and ventricle is the orifice of the coronary, or proper vein of the heart, this orifice is covered by a semilunar valve.

The aperture between the right auricle, and right ventricle, is about an inch in diameter, and is called *ostium venosum*. From its whole margin arises a valve, which is divid-

ed into three portions, it is the *valvula tricuspides*, which prevents the blood from returning, when thrown in to the ventricle.

The right ventricle, is a triangular cavity, situated at the side of the heart, and immediately beneath the auricle, receives the blood from the auricle, and discharges it into the pulmonary arteries which carry it through the lungs.

The left auricle, is situated on the left side of the basis of the heart. It is made by the junction of the four pulmonary veins, which come from each lobe of the lungs, returning the blood from them to the heart. This is furnished with valves like unto the right auricle. These valves are so formed as to admit the passage of blood from the auricle, but completely prevent its return, when the ventricle contracts.

The left ventricle, is situated posteriorly, and to the left of the right ventricle. It is conical and rather longer than the right, to the side of this ventricle is the mouth of the aorta (great artery.) The mouth of the aorta is furnished with three semilunar valves to prevent the return of the blood into the ventricle. From this artery immediately after it leaves the heart, arises two arteries which supply the substance of the heart with blood. The great vein of the heart open into the under side of the right auricle.

The vessels that supply the heart, are generally called the *Coronary Vessels*, because they (coronate) run round the heart. The heart is the great organ of circulation.

EXPLANATION OF PLATE III.

- Fig. 1. The right ventricle distended with wax.
2. The right auricle.
3. The left auricle.
4. Branches of the veins of the right lobe of the lungs,
those of the left being cut off.
5. The arteries of the left lobe of the lungs.
6. The vena cava descendens.
7. The Aorta ascendens.
8. The Pulmonary artery.
9. Ductus arteriosus.
10. The under side of a heart of a young child.
11. The right auricle cut open.
12. The cava descendens cut open.
13. Tuberculum Lowri.
14. The foramen ovale closed with its valve.
15. The mouth of the coronary veins.
16. The umbilical vein.
17. Branches of the vena porta in the liver.
18. Ductus Venosus.
19. Branches of the cava in the liver.
20. Vena cava.

OF THE VESSELS.

Vessels are long, membranous canals, which carry blood, lymph, or chylo. *Division*, into arteries, veins, and absor-
 ents. *Situation*, in every part of the body, excepting the
 nails, arachnoid membrane, and epidermis.

OF THE ARTERIES.

Arteries are elastic membranous canals, which pulsate ; they always become narrower as they proceed from the heart towards the extremities. *Origin*, from the ventricles of the heart ; namely, the pulmonary artery from the right, and the aorta from the left, ventricle : so that there are only two arteries, of which the rest are branches. *Termination*, in veins, exhaling vessels, or they anastomose with one another. *Composed*, of three membranes, called coats ; an external one, a middle coat, which is muscular, and an inner one, which is smooth. *Use*, to convey blood from the heart to the different parts of the body, for nutrition ; preservation of life ; generation of heat ; and the secretion of different fluids.

OF THE AORTA, OR GREAT ARTERY.

The aorta arises from the left ventricle of the heart, forms an *arch* towards the dorsal vertebra, then *descends* through the opening of the diaphragm into the abdomen, in which it proceeds by the left side of the spine to the last vertebra of the lions, where it divides into the two iliac arteries. In this course it gives off, just above its origin, two coronary arteries to the heart, and then forms an arch.

This arch of the aorta, gives off three branches, which supply the head, neck, and arms, with blood ; these are,

1st. The *Arteria Innominata*, (nameless artery,) which divide into the right carotid and right subclavian arteries.

2d. *The left Carotid.*

3d. *The left subclavian.*

The carotid Arteries, having emerged from the chest, run up along the neck one on each side of the trachea, to the angle of the lower jaw, where they divide into external and internal.

The *external carotid Artery*, gives off eight braches to the neck and face, viz :

1st. To the thyroid gland, 2d. to the tongue, 3d. to the pharynx, 4th. to the ear, 5th. to the back part of the head, 6th. to the external, and 7th. to the internal parts about the upper jaw bone; (the latter gives *one* to the lower jaw bone, supplying the teeth and face, *others* to the pterygoid muscles, *two* to the temples, *another* which divides to the teeth and orbits, *one* to the palate, *one* to the sphæmoid sinus, and *another* to the cavity of the nostrils;) 8th. to the temples, which passes through the parotid gland, and sends off several branches to the face, forehead, ear, and temples.

The *Internal Carotid Artery* leaves the external at the angle of the jaw, and proceeds by the vagum and intercostal nerve to the carotid canal in the petrous portion of the temporal bone, where it is shaped like the letter *f*, and enters the cranium at the side of the sella turcica, having given off *two* very small *twigs* to the pituitary gland, and 3d, 4th, and 5th pair of nerves; and when it has reached the anterior clinoid process, it sends off,

1st. The *Arteria Ophthalmica*, which is distributed on the eye.

2d. The *Anterior Cerebri*, which proceeds before the sella turcica, unites with its fellow, and forms the circle of Willis, from which a branch proceeds to the third ventricle, septum lucidum and the *arteria corporis callosi*.

3d. The *Media cerebri*, which runs between the anterior and middle lobes of the brain, gives off the *artery of the choroid plexus*, and is lost on the middle lobe of the brain.

4th. The *Communicans*, which proceeds backwards, and soon inosculates with the vertebral.

The *Subclavian Artery* arises on the right side from the *arteria innominata*, and on the left from the arch of the aorta. Each subclavian gives off seven branches, viz. :

1st. The *internal mammary*, from which arises the *thymica*, *comes phrenici*, *pericardiac*, and *phrenico pericardiac*.

2d. The *inferior thyroid*, from which arises the *ramus thyroideus*, the *tracheal arteries*, the *ascending thyroid*, and the *transversalis humeri*.

3d. The *Vertebralis*, which proceeds into the vertebral foramina, to ascend into the cavity of the cranium, where it unites upon the cuneiform process of the occipital bone with its fellow of the other side, and forms the *Basilar Artery*,

which immediately gives off the *posterior* artery of the cerebellum ; it then proceeds upon the tuberculum annulare, to give off four branches, two to the right, and two to the left, which constitute the *anterior cerebelli*, which branch to the crura cerebelli, the cerebellum, vermis, crura cerebri, corpora quadrigemina, pineal gland, and fourth ventricle ; and the *posterior cerebri*, which is joined by the *communicans*, and supply the thalami nervorum opticorum, the centrum geminum, infundibulum, and crura fornicis, and the posterior lobes of the brain, inosculating with several arteries.

4th. The *Cervicalis profunda*.

5th. The *Cervicalis superficialis*, both of which are distributed about the muscles of the neck.

6th. The *Intercostal superior*, which lies between the two upper ribs.

7th. The *Supra-scapularis*, which sometimes arises from the thyroidea, when it is called the *transvalis humeri*.

As soon as the subclavian has arrived in the axilla (armpits), it is called the *axillary artery*, which runs into the arm, where it is termed the *Brachial*.

The *axillary artery* gives off,

1st. The four *mammary arteries*, called *thoracica superior* ; *thoracica longior*, *thoracica humeriana* ; and *thoracica axillaries*, which supply blood to the muscles about the breast.

2d. The *sub-scapularis*, which supplies the lower surface of the scapula.

3d. The *circumflexa posterior*.

4th. *Circumflexa anterior*, which ramify about the joint.

The *Brachial*, or *Humeral artery* gives off,

1st. Many lateral vessels.

2d. *Profunda humeri superior*.

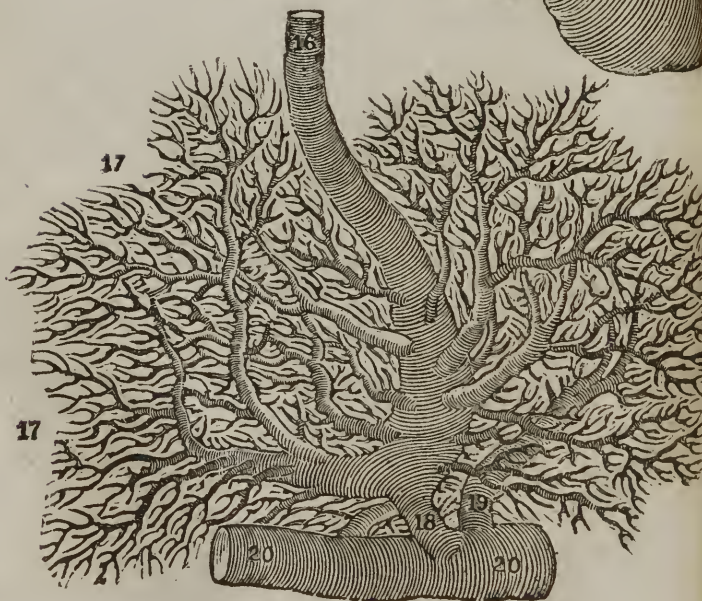
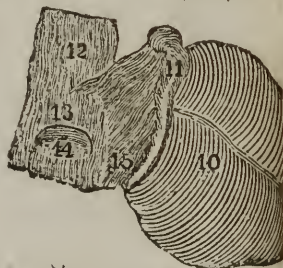
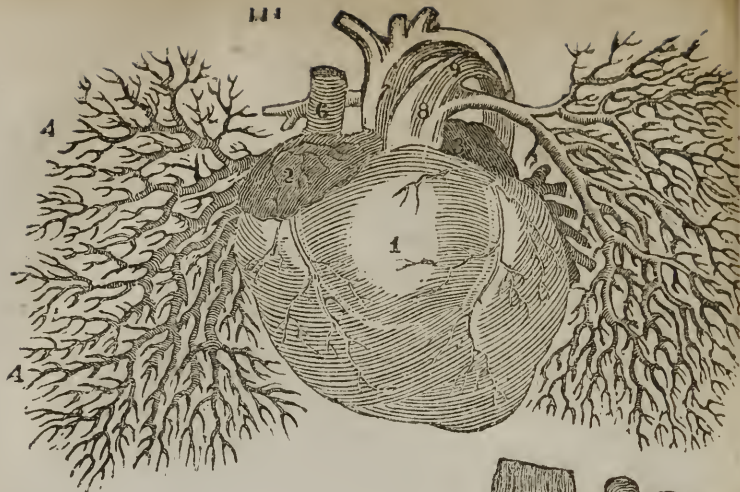
3d. *Profunda humeri inferior*.

4th. *Ramus anastomaticus magnus*, which anastomoses round the elbow joint. The brachial then becomes the ulnar, and gives off the *Radial*.

The *Ulnar* or *cubital Artery* sends off,

1st. The *recurrent branches*, which anastomose with the *ramus anastomaticus magnus*.

2d. The *Interossea communis*. It then sends small branches to the adjacent muscles, as it proceeds down to the



wrist ; just before it arrives here, it gives off the *dorsalis ulnaris*, which goes round to the back of the little finger. At the wrist it gives off *palmaris profunda* ; then forms a great arterial arch, called the *superficial palmer arch*, which supplies branches to the fingers.

The *Radial artery* gives off the *radial recurrent*, proceeds to the wrist, where the pulse is felt, and gives off the *superficialis volæ*, and then divides into the *dorsalis pollicis*, *radialis indicis*, *magna pollicis*, and *palmaris profunda*.

The *descending aorta* gives off in the breast,

- 1st. The *bronchial*, which nourish the lungs.
- 2d. The *æsoophageal*, which go to the æsophagus.
- 3d. The *intercostals*, between the ribs.
- 4th. The *inferior diaphragmatic*.

Within the abdomen, the same artery (*descending aorta*) gives off 8 branches, viz :

- 1st. The *Cæliac*, from which arise the *arteria Hepatica* (artery of the liver,) *gastrica*, and *splenica*.
- 2d. The *superior mesenteric*, of which the *colica media*, *colica dextra*, and the *ileo-colica*, are branches.
- 3d. The *renal arteries*, or *emulgents*, which are short, and divide into three or four branches, to the kidney.
- 4th. The *spermatic arteries*.
- 5th. The *inferior mesenteric*, from which arises the left coelic artery, and the *internal hæmorrhoidal*.
- 6th. The *lumbar arteries*, which nourish the muscles and vertebra of the loins.
- 7th. The *middle sacral*, which is distributed about the sacrum.

The aorta then bifurcates, and becomes the iliac arteries.

The iliacs soon divide into *internal* and *external*.

Each *internal iliac* or *hypogastric artery*, gives off five branches, viz :

- 1st. The *lateral sacral arteries*.
- 2d. The *gluteal*, which ramify upon the back of the haunch bone, and supply the gluteal muscles.
- 3d. The *ischiatric*, which turns downwards along the hips, and gives off the *coccygeal artery*.
- 4th. The *arteria pudica communis*, which proceeds out of the pelvis through the sciatic notch, returns into the pelvis, and runs towards the symphysis of the pubis.

5th. The *obturator*, which passes through the oval foramen, and is distributed on the thick muscles in the centre of the thigh.

Each *external iliac* gives off,

1st. The *epigastric*, which is reflected from Poupart's ligament upwards, along the abdomen.

2d. *Circumflexa iliaca*, which runs backwards along the crista ilii.

The *external iliac* then passes under Poupart's ligament, becomes the *femoral artery*, and is continued along the thigh into the popliteal. In this course, it gives off near the groin,

1st. The *profunda femoris*, which gives off the *perforans prima*, *secunda magna*, *tertia*, and *quarta*, which nourish the muscles of the thigh. The femoral artery then makes a spiral turn round the os femoris, sending off small branches, and about two hands breadth from the knee it gives out.

2d. The *ramus anastomaticus magnus*, which ramifies about the knee joint.

The femoral artery, having reached the ham, is called the *popliteal*, which gives off several small branches about the joint, and divides below the ham into the *tibialis antica*, and *postica*.

The *tibialis antica* soon perforates the interosseous ligament, and passes along the tibia over the bones of the tarsus, and then inosculates with the back arteries. In this course it gives off,

1st. The *recurrent*, which inosculates with the articular branches of the popliteal: it then sends off small branches as it passes down the leg.

2d. The *malleolaris interna*, about the inner ankle.

3d. The *malleolaris externa*, about the outer ankle.

4th. The *tarseal*, which lies upon the bones of the tarsus.

5th. The *metatarsal*, to the tendons of the peronei muscles.

6th. The *dorsalis externa halucis*, which runs along the metatarsal bone of the great toe.

The *tibialis postica* passes along the back part of the tibia, goes round the inner ankle, and divides at the heel into the two plantar arteries. In this course it sends off,

1st. The *nutritia tibia*, which gives branches to the popliteus, solens, and tibialis anticus, before it enters the bone.

2d. Many small branches as it passes downwards.

3d. *Plantaris externa*, which runs along the inner edge of the sole of the foot, and sends off *four branches* about the foot.

4th. *Plantaris externa*, which forms an arch and inosculates with the anterior tibial artery, and gives off the *digital branches* to the toes.

PULMONARY ARTERY.

THE pulmonary artery arises from the right ventricle of the heart, and conveys the blood into the lungs, that is returned to the heart by the veins; not for their nutrition, but to receive from the air in the lungs a certain principle, necessary for the continuance of life, and which the arterial blood distributes to every part of the body. It soon divides into a *right* and *left*, the right going to the right lung and the left to the left lung, where they divide into innumerable ramifications, and form a beautiful *net work* or *plexus of vessels*, upon the air vesicles, and then terminate in the pulmonary veins.

THE ACTION OF THE ARTERIES.

THE arteries, by the impulse of the blood from the ventricles of the heart, are dilated and irritated, and by means of their muscular coat contract upon the blood, and thus propel it to the glands, muscles, bones, membranes, and every part of the body for their nutrition and the various secretions, and then into the veins. This dilatation and contraction is called the *pulse*, which is perceptible in the trunks and branches of the arteries, but not in the capillary vessels, except when inflammation is going on.

OF THE VEINS.

VEINS are membraneous canals which do not pulsate; they gradually become larger as they advance towards the heart, in which they terminate, and bring back the blood from the arteries. *Origin*, from the extremities of the arteries by anastomosis. *Termination* of all the veins is into the auricles of the heart. *Division*, into trunks, branches, ramuli, &c. *Situation*, they run by the sides of arteries, but more superficially. *Composed* like arteries of three membranes, but which are semi-transparent and more delicate. *Valves* are

thin semi-lunar membranous folds, which prevent the return of the blood in the vein.

The blood is returned from every part of the body into the right auricle; the vena cava superior receives it from the head, neck, thorax, and superior extremities; the vena cava inferior from the abdomen and inferior extremities; and the coronary vein receives it from the coronary arteries of the heart.

THE VENA CAVA SUPERIOR.

THIS vein terminates in the superior part of the right auricle, into which it evacuates the blood, from

The *right and left subclavian veins* and the *vena azygos*.

The right and left subclavian veins receive the blood from the head and upper extremities, in the following manner, viz:

The veins of the fingers, called *digitals*, receive their blood from the digital arteries, and empty it into,

1st. The *cephalic of the thumb*, which runs on the back of the hand along the thumb, and evacuates itself into the external radial.

2d. The *salvatella*, which runs along the little finger, unites with the former, and empties its blood into the internal and external cubital veins. At the bend of the fore-arm are three veins called the great cephalic, the basilic, and the median.

The *great cephalic* runs along the superior part of the fore-arm, and receives the blood from the external radial.

The *Basilic* ascends on the under side, and receives the blood from the *external and internal cubital veins*, and some branches which accompany the brachial artery, called *venæ satellitum*.

The *median* is situated in the middle of the fore-arm, and arises from the union of several branches. These three veins all unite above the bend of the arm, and form

The *brachial vein*, which receives all their blood, and is continued into the axilla, where it is called

The *axillary vein*. This receives also the blood from the scapula, and superior and inferior parts of the chest, by the *superior and inferior thoracic vein*, the *vena muscularis*, and the *scapularis*.

The axillary vein that passes under the clavicle, where it

is called the *subclavian* which unites with the external and internal jugular veins, and the vertebral vein which brings the blood from the vertebral sinuses; it receives also the blood from the mediastinal, pericardiac, diaphragmatic, thymic, internal mammary and laryngeal vein, and then unites with its fellow, to form the vena superior, or, as it is sometimes called, vena cava descendens.

The blood from the external and internal parts of the head and face is returned in the following manner into the external and internal jugulars, which terminate in the subclavians:

The *frontal angular*, *temporal* auricular, *sublingal*, and *occipital* veins receive the blood from the parts after which they are named; these all converge to each side of the neck, and form a trunk, called the external jugular vein.

The blood from the brain cerebellum, medulla oblongata, and membranes of these parts, is received into the lateral sinuses, or vein of the dura mater, one of which empties its blood through the foramen lacerum into the internal jugular, which descends in the neck by the carotid arteries, receives the blood from the thyroideal and internal maxillary veins, and empties itself into the subclavians within the thorax.

The vena azygos receives the blood from the bronchial, superior œsophageal, vertebral and intercostal veins, and empties it into the superior cava.

VENA CAVA INFERIOR.

THE vena cava inferior is the trunk of all the abdominal veins and those of the lower extremities, from which parts the blood is returned in the following manner:

The veins of the toes, called the digital veins, receive the blood from the digital arteries, and form on the back of the foot three branches, one on the great toe called the cephalic, another which runs along the little toe, called the vena saphena, and one on the back of the foot, vena dorsalis pedis; and on the sole of the foot they evacuate themselves into the plantar veins.

The three veins on the upper part of the foot coming together above the ankle, form the anterior tibial; and the plantar veins, with a branch from the calf of the leg, form the posterior tibial; a branch also descends in the direction of the fibula, called the peroneal vein. These three branches unite before the ham, into one branch, the subpopliteal vein, which

ascend through the ham, carrying all the blood from the foot: it then proceeds upon the anterior part of the thigh, where it is termed the crural or femoral vein, receives several muscular branches, and passes under Pauport's ligament into the cavity of the pelvis, where it is called the external iliac.

The arteries which are distributed about the pelvis evacuate their blood into the external hemorrhoidal veins, the hypogastric veins, the internal pudendal, the vena magna, and obturatory veins, all of which unite in the pelvis and form the internal iliac vein.

The external iliac vein receives the blood from the external pudendal veins, and then unites with the internal iliac at the last vertebra of the loins, and forms the vena cava inferior, or ascendens, which ascends on the right side of the spine, receiving the blood from the sacral lumbar, right spermatic veins, and the vena cava hepatica; and having arrived at the diaphragm, it passes through the right foramen, and enters the right auricle of the heart, into which it evacuates all the blood from the abdominal viscera and lower extremities.

VENA CAVA HEPATICA.

THIS vein ramifies into the substance of the liver, and brings the blood into the vena cava inferior from the branches of the vena portæ, a great vein which carries the blood from the abdominal viscera into the substance of the liver. The trunk of this vein is divided into the hepatic and abdominal portions. The abdominal portion is composed of splenic mesenteric and internal hemorrhoidal veins. These three venous branches carry all the blood from the stomach, spleen, pancreas, omentum, mesentery, gall-bladder, and the small and large intestines, into the sinus of the vena portæ. The hepatic portion of the vena portæ enters the substance of the liver, divides into innumerable ramifications, which secrete the bile, and the superfluous blood passes into corresponding branches of the vena cava hepatica.

OF THE ACTION OF THE VEINS.

VEINS do not pulsate; the blood which they receive from the arteries flows through them very slowly, and is conveyed to the right auricle of the heart, by the contractility of their coats, the pressure of the blood from the arteries, called *vis a tergo*, the contraction of the muscles, and respiration; and

it is prevented from going backwards in the vein by the valves, of which there are a great number.

OF THE ABSORBENTS

ABSORBENTS are very thin and pellucid vessels, which bring the lymph from every part of the body, the chyle from the intestines, and substances applied to the surface of the body, and empty the whole into the thoracic duct. These absorbents are divided into lacteals and lymphatics. In the intestines and mesentery, they are called lacteals; in every other part, lymphatics. They have a branching shape, becoming broader as they proceed towards their termination, with numerous valves, giving them a knotted appearance; they originate from the external surface, cellular membrane, viscera, &c., and terminate in the thoracic duct, or subclavian veins—and are supposed to exist in every part of the body.

The lymphatic glands are situated every where in the course of the lymphatics, the substance of which consists of pellucid, strong tunics.

PHYSIOLOGY OF ABSORPTION.

ABSORPTION is the taking up of substances which are applied the mouths of absorbing vessels; thus, the chyle is absorbed from the intestines by the lacteals, the vapor of cells or cavities is absorbed by the lymphatics of those parts; and thus mercury and other substances are taken into the system, when rubbed on the skin.

The principle by which this absorption takes place is a power inherent in the mouths of absorbing vessels, dependent on the high degree of irritability of their internal membrane by which the vessels contract and propel the fluid forwards. Hence the use of this function appears to be of the utmost importance, viz: to supply the blood with chyle; to remove the superfluous vapors of circumscribed cavities; (otherwise dropsies would constantly be taking place;) to remove the hard and soft parts of the body; and to convey the into system medicines which are applied to the surface of the body.

The *lacteals*, or vena lactea, are a vast number of fine pellucid tubes, beginning at the small guts, and thence passing through the mesentery and mesenteric glands, they enter the receptaculum chyli. These vessels take up, and carry the

chyle from the food to the following vessels, which carry it on to be converted into blood :

The *receptaculum chyli*, is a membranous bag two thirds of an inch long, and one third of an inch over, situated on the first vertebra of the loins. Its superior part becomes gradually smaller, and is contracted into a slender pipe of about a line diameter, called ;

Ductus thoracicus, or *Thoracic duct*, which is derived from the vessels before named, and they from all those of the lower extremities, the lower part of the trunk of the body, the intestines, and other viscera of the abdomen and pelvis. It lies at first behind the aorta, but it soon inclines to the right of it, in the thorax and is in front of the spine between the aorta and the vena azygos until it reaches the third or fourth dorsal vertebra. It then inclines to the left, until it emerges from the thorax and has arisen above the left plura, it then continues to ascend nearly as high as the sixth cervical vertebra, it then turns downward about three fourths of an inch, and terminates in the back part of the angle, formed by the union of the left internal jugular with the left subclavian vein. Some times it divides and unites again, or enters at two places near each other. It is furnished with two valves that effectually prevents the blood from passing from the vena cava into it. This receives the fluid of the absorbents which it carries to the vessels containing red blood, to be converted into it, and to be appropriated to the nourishment of the body.

SANGUIFICATION.

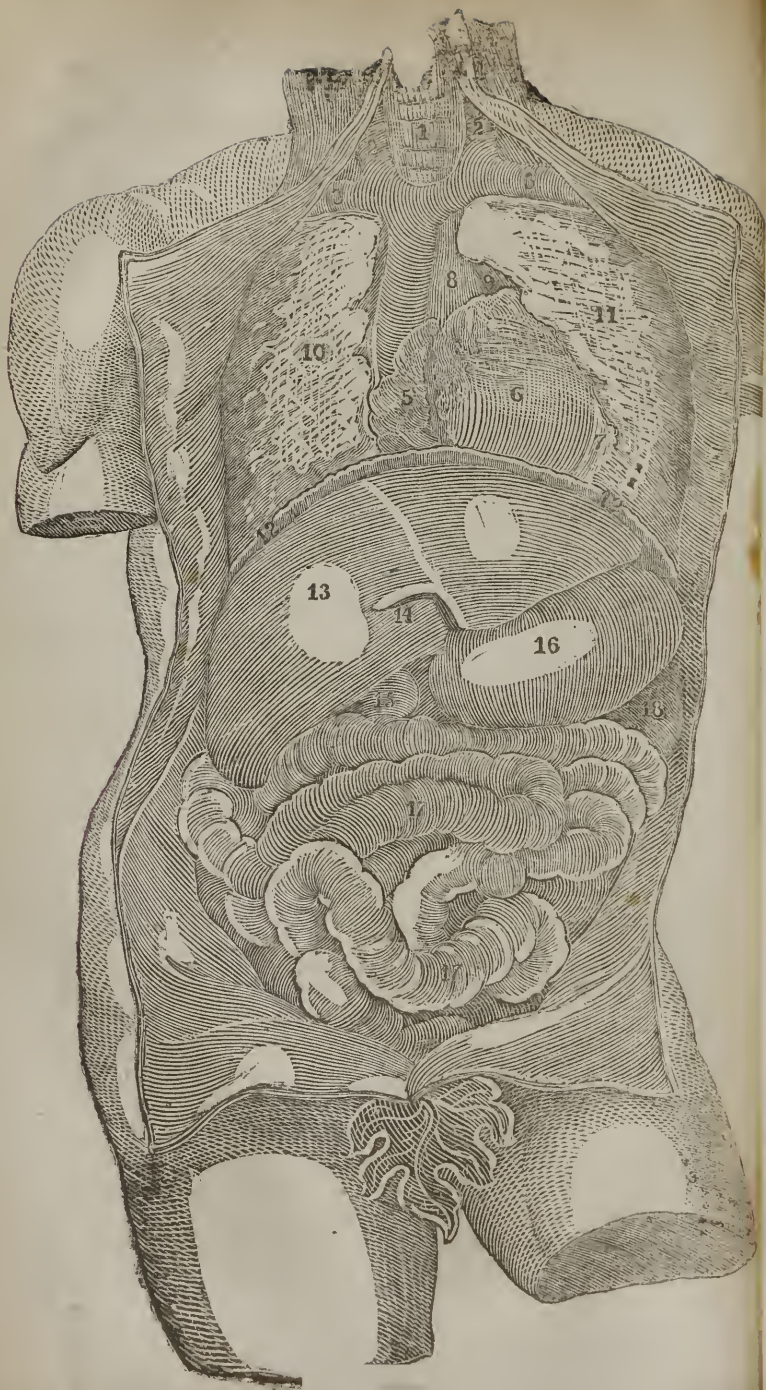
Is nothing more than the mixing of the chyle with the blood, by the action of the blood vessels ; for as it passes from the subclavian vein, it changes its color, and when it has reached the heart, cannot be distinguished from the mass of circulating blood.

OF THE PARTS CONTAINED WITHIN THE ABDOMEN, OR BELLY.

Peritoneum, is a membrane that lines the whole cavity of the abdomen, being reflected over the liver, spleen, omentum, stomach, guts, and mesentery, and all their vessels and glands.

Omentum, or *cawl*, is a fine membrane larded with fat, like net-work ; it is situated on the surface of the small intestines.





DUCTUS ALIMENTALIS, OR ALIMENTARY CANAL.

Œsophagus, or gullet, is the beginning of the alimentary canal. Its upper part is wide, spread out behind the tongue to receive the masticated food. Its inner coat is smooth, beset with many glands which secrete a mucilaginous matter, to defend this membrane and render the descent of the aliment easy.

Stomach, or ventriculus, is situated under the left side of the diaphragm, its left side touching the spleen, and its right is covered, by the thin edge of the liver. It has two orifices, both on its upper part; the left through which the aliment passes into the stomach, named *cardia*; the right through which it passes into the intestines, and is named *pylorus*, this has a circular valve which hinders a return of the aliment. The use of the stomach is to receive and digest the food.

The intestinal canal is the *duodenum*, which begins at the *pylorus* of the stomach, and receives the following names as it differs in size, appearance, situation, &c. *jejunum*, *ileum*, *colon*, *cæcum*, and *rectum* which is the last part of the intestinal canal. The stomach and intestines have three coats, an external membranous, a middle muscular, and inner membranous which is beset with glands, that separate a mucous similar to that of the *oesophagus*.

The *mesentery* is a membrane beginning loosely upon the loins, and immediately covers all the intestines.

The liver, is the largest gland in the body; of a dusky red color; situated under the diaphragm in the right side, its outer side is convex, its inner side concave, backward toward the ribs it is thick, and thin on its fore part where it covers the stomach and some of the intestines. The upper side adheres to the diaphragm, and is tied to it and the sternum by a thin ligament called *suspensorium*, it is also tied to the navel by a round ligament called *teres*, which is the umbilical vein of the child, degenerated into a ligament; for the vessels, see blood vessels.

The gall bladder, is seated in the hollow side of the liver, its use is to secrete and contain the bile.

Pancreas, or sweet-bread, is a large gland across the upper and back part of the abdomen. It secretes a juice which it empties through its duct; with the bile duct, into the *duodenum*, and helps to complete digestion.

The spleen, or melt, is in the left hypochondrium (side) immediately below the diaphragm ; use, unknown.

Diaphragm, or midriff, arises from three lumbar vertebra, and one of the thorax on the right side, and on the left, from the superior vertebra of the loins, and inferior of the thorax, and is inserted into the lower part of the sternum and the five inferior ribs. The middle is a flat tendon from whence the fleshy fibres begin, and radiate towards the circumference. When it acts alone it constricts the thorax, and pulls the ribs downward, when it acts with the abdominal muscles it draws the ribs nearer together ; use, to separate the thorax from the abdomen, and assist in breathing and in expelling the contents of the bowels.

DESCRIPTION OF PLATE IV.

Fig. 1. The larynx.

2. Internal jugular vein.
3. Subclavian vein.
4. Cava descendens.
5. Right auricle of the heart.
6. Right ventricle.
7. Part of the left ventricle.
8. Aorta ascendens.
9. Pulmonary artery.
10. The right lobe of the lungs, part of which is cut off to show the great blood vessel.
11. Left lobe of the lungs.
12. Diaphragm.
13. Liver.
14. Ligamentum rotundum, that suspends the liver from the navel.
15. Gall bladder.
16. Stomach, pressed by the liver towards the left side.
17. Small intestines.
18. Spleen, or melt.

OF THE EYE.

THE cavity, (orbit) in which the eye is contained is, in all the vacant places, filled with a loose fat, for the convenience of its motions. To keep the external part of the eye ball, and internal part of the eyelids, flexible and moist, the eyelids are furnished with little glands, called the glands of meibomius, which secrete the sebaceous matter that prevents the eyelids from adhering, in consequence of their contact during sleep. And the lachrymal fluid is constantly secreted by the lachrymal gland, which keeps the eyeball moist, and serves to wash away any extraneous matter that may lodge in the eye.

This gland is situated in a depression, in the upper surface of the orbit near the external margin, it is of an irregular oblong form, and rather flat. From the anterior edge, the excretory ducts, to the number of six or seven, pass off.—The fluid secreted by this gland (the tears) is transparent, but salt to the taste. The tears are carried from the eye by two small canals which commence, one on each eyelid, opposite to each other, and run within the edge of each eyelid to the lachrymal sac, which is a large membranous canal situated in the inner corner, or canthus of the eye, next the nose, which sac soon contracts itself, and is then called the lachrymal duct. This duct passes immediately into the nose by which the superfluous moisture of the eye is discharged into the nostrils. The membrane that lines the inside of the eyelids is called tunica conjunctiva. It is thin, extremely flexible, and sensible, and also transparent; and is reflected over the whole anterior surface of the eye. Its vessels do not carry red blood in a natural state, but receive it largely when inflamed or relaxed. That part immediately connected with the cornea is extremely thin and delicate.

OF THE BALL OF THE EYE.

The tunica sclerotica, or external coat of the ball of the eye, is composed of opaque white fibres, which forms a very strong membrane, that supports the globular figure of the eye. This membrane covers so much of the anterior part of the eye as is called the white of the eye. Posteriorly it is connected with the optic nerve, which enters it a little to the axis, of the centre that passes through the cornea, and pupil.

The sclerotica, in a natural state has but a few if any

vessels that carry red blood. The vessels that are seen in ophthalmia, are in the conjunctiva.

The *Cornea*, (so called from its resemblance to horn,) is the transparent membrane, that begins at the edge of the sclerotica, and covers the centre and anterior part of the ball of the eye. This is covered by the tunica conjunctiva, which adheres firmly to it and can only be separated by maceration. The cornea is lined internally by a fine membrane, which is the capsule of the aqueous humor. Its vessels do not admit red blood. It is very convex; but this convexity is very different in different persons. Those in whom it is very great, are necessarily short-sighted.

The *choroid coat*, lines the sclerotica, it being a thin, flexible, vascular membrane, in contact with it nearly throughout its whole extent. It is so delicate, and full of vessels, that it is considered by some anatomists, as composed entirely of vessels and nerves. It has three sets of arteries, which are derived from the ophthalmic branch of the internal carotid artery. Its veins and nerves are also very numerous.

The internal surface of the choroid coat is covered with a black paste, denominated pigmentum nigrum. It is said that the color of this pigment, has never been changed by the ordinary chemical agents, or by heat. When it is washed away, the choroides beneath appears to be villous. As this extends round the circumference of the cornea, it forms a ring, which is between one and two lines broad.* This constitutes the ciliary ligament, and is generally of a gray color.

The *Iris*, is united to the circular edge of this ligament, and extends across a portion of the cavity of the eye and forms a septum. This being circumscribed by the ciliary ligament, is of necessity circular. It is the membrane that is seen through the transparent cornea, and which gives the color to the eye. This differs in different persons as their eyes are, black, blue, &c. &c. Through the centre of the iris is a round hole, or foramen, which is called the *pupil*, which varies in size in the healthy subject according to the degree of light to which the eye is exposed; in the dark, or by closing or covering the eye, the pupil will be much enlarged, but soon becomes small on being exposed to the light again, this is called dilation and contraction. The iris being flat or plane, and passing directly across the eye, and the

* A line is one twelfth of an inch.

cornea being convex outward, there must be a considerable vacuity betwixt them. This vacuity is called the anterior chamber of the eye. The iris is covered with a black pigment like the choroides, upon its posterior surface, this is called *uvea*.

The ciliary body and ciliary processes. This projection forms a ring, and has the ciliary ligament anterior to it, its whole back surface appears to be formed into radiated plates, this surface, or plaited membrane is called the ciliary body; and the plaits are called ciliary processes. They do not extend to the centre of their circle; but include a circular aperture, larger than the pupil and situated a little way behind it.—This aperture is occupied by the crystalline lens, but the lens does not unite with the ciliary processes, but is in contact.

The retina, this is situated within the choroides, and in contact with its internal surface, and is the third coat of the eye. This coat is the extension, co-expansion, and final termination of the optic nerve, and the immediate seat of sight. The retina has the appearance of mucous, and the transparency of glass, but by particular management, when the retina floats in water, the mucus may be removed, and the retina will remain, a delicate, soft, transparent, and vascular membrane. This extends from its origin, at the optic nerve, in the back part of the ball of the eye, to the commencement of the ciliary process. It lines the choroid coat, and is in contact with the pigmentum nigrum.

OF THE HUMORS OF THE EYE.

THE humors of the eye are three, viz. the aqueous, crystalline, and the vitreous, they are separately invested with a membranous capsule, which is delicate, and transparent.

The *vitreous humor*, occupies almost all the cavities of the eye which is back of the iris, and is of a spherical form, it has a depression in its forward surface, in which the back surface of the lens is received. It is covered by the retina as far as the retina extends.

The peculiar consistence of this body, which resembles melted glass, (from which it has its name,) is owing to its membrane, which is a spherical sac, divided by many partitions that form very small irregular cavities, in which the fluid is contained. This membranous sac is perfectly transparent, but its particular structure is not well understood.

This humor appears necessary to give the ball of the eye the requisite size, for the performance of its optical functions ; to keep the retina properly distended, and to retain the crystalline lens (sight) at the proper focal distance from the retina.

The *crystalline lens*, is a solid body ; although considered as one of the humours of the eyes ; it is of a softish consistence, like gum half dissolved, and is more firm in the centre than about the circumference. It is perfectly transparent if sound, in young and middle aged persons, but is yellowish in old age. It is convex on both surfaces, the anterior surface is the least convex. The posterior surface is most convex ; and both sides are most so in young persons. It is invested with a transparent membrane, to which it probably does not adhere, as it is easily pressed out in the operation of extracting the cataract. The posterior surface of its membrane, adheres firmly to the membrane that incloses the vitreous humor, and on its anterior surface, it is also covered by the membrane of the vitreous humor. No blood vessels are to be seen in any of the humors.

The use of the crystalline lens is to concentrate the rays of light, so as to form a distinct image at the bottom of the eye.

The *Aqueous* (watery) *humor*, occupies the space that is between the crystalline lens and central extremities of the ciliary processes and the cornea. This space is divided by the iris into two chambers, which communicate with each other by means of the pupil. The anterior chamber is all that space which lies between the cornea, or transparent membrane that covers the fore part of the ball ; and the iris, or that partition membrane that gives color to the eye. The posterior chamber is immediately back of the iris and is much smaller than the anterior chamber.

The aqueous humor is quickly renewed after it has escaped in consequence of wounds or operations. This fluid preserves the convexity of the cornea, and admits the free motions of the iris.

OF THE EAR:

THE inner substance of the ear is cartilage, its use is to collect sounds, and direct them into the meatus auditorius, which is the passage that leads to the drum ; this passage is lined with a glandular membrane, which secretes the cerumen or wax of the ear for the purpose of defending itself

from the outer air, and to entangle any insect that might otherwise get into the ear.

At the farther end of the passage lies the membrane of the drum, which is extended or stretched upon a bony ridge almost circular. This membrane does not entirely close the passage, but has on one side a small aperture, called *fenestra ovalis*, covered with a valve.

In the middle of the tympanum, or drum, is extended a small bone called *malleus*, whose other end is articulated to a bone called *incus*, which, by the intervention of a very small bone called *orbiculare*, is also articulated to a fourth bone called *stapes*. From the cavity behind the tympanum, which is called the barrel of the ear, goes the eustachian tube, and ends cartilaginous behind the palate. This passage seems to be exactly of the same use with the hole in the side of the common drum, that is, to let the air pass in and out from the barrel of the ear to make the membrane vibrate the better, and perhaps in the ear, which is closer than a common drum, to let air in or out as it alters in density; and if any fluid should be separated in the barrel of the ear, to give it a passage out. When sounds are too weak, the *malleus* is moved inwards by the *trochlearis* muscle, by which the tympanum is extended or stretched in order that it may be more affected by the sound. When sounds are too strong, the *malleus* is moved by the *externs tympani* muscles so as to relax or contract the tympanum, in order that it may be less affected by the sound, just as the pupil or sight of the eye is contracted when we have too much light, and dilated or stretched when we have too little. There is one muscle attached to the *stapes* which is called *musculus stapedis*, and serves to pull the *stapes* off of the *fenestra ovalis*, which otherwise it covers. Besides the *fenestra ovalis*, there is another small hole near it called *rotunda*, and both of them lead to a cavity called *vestibulum*, which leads into other cavities and canals, forming the labyrinth. in which are spread the auditory nerves, to receive and convey the impulse of sounds to the common sensorium, the brain.

RESPIRATION, OR BREATHING.

RESPIRATION is the inspiration, or ingress, of the air into the lungs, and the expiration, or egress of the air from the lungs.

The exciting cause of inspiration is the air rushing into the lungs and irritating its nerves, which irritation is communicated to the diaphragm and intercostal muscles, and compels them to contract. The contraction of the intercostal muscles and diaphragm, and the pressure of the elastic air, therefore dilate the chest. The air being deprived of its stimulus, the intercostal muscles and diaphragm become relaxed, the cartilages of the ribs and abdominal muscles, before expanded, return to their former state, and thus the air is expelled from the lungs.

The small branches of the pulmonary artery form a beautiful *net work of vessels* on the internal membrane of the air vesicles. During expiration, the air vessels are collapsed; consequently the blood vessels become tortuous, and the blood is prevented from passing. In inspiration then, the air vesicles being dilated, the tortuous vessels are elongated, and a free passage afforded to the blood; the very delicate coats of these vessels are also rendered so thin as to suffer a *chemical action* to take place between the air in the vesicles, and the blood in the vessels. This constitutes the primary use of respiration; viz. the blood absorbing the oxygen gas from the air, by which it is generally believed that animal heat is generated, and the nervous energy increased; but this subject is not yet determined.

OF THE VOICE.

THE voice is caused by the sound of the air propelled through the glottis; so that the organ of the voice is the larynx and its muscles. The shrillness and roughness of the voice depends on the diameter of the glottis, its elasticity, mobility, and lubricity, and the force with which the air is expelled, thus when the diameter is increased, the voice is more bass, and so the reverse.

VENTRILOQUISM.

CONSISTS in the motion of the uvula, epiglottis, and fauces, by which the sounds are modulated without using the lips, teeth or palate. The mouth being nearly shut, and the voice resounding between the larynx and cavity of the nose, the sound is returned as if made by some one at a distance.—There is no other mystery about it, and any person whose

organs of speech are perfectly formed, and who will take the trouble to practise, may become a ventriloquist.

It is not supposed that people in general are to acquaint themselves with minute anatomy, for such an acquisition, though deeply interesting, would perhaps be more laborious than useful.

But it *is supposed*, that all persons of the least intelligence, if they had it in their power, would obtain a knowledge of the general structure of the human body.

With this in view, the preceding section has been written; and the author flatters himself that it will amply repay any one for the labor of reading it.

People have in general been struck with admiration, in presence of a person acquainted with anatomy; there is something so apparently mysterious in obtaining a knowledge of this branch of philosophy. Now permit me to say that their notions of mystery are altogether misplaced, and that we are only to gaze with admiration and wonder, on this amazing structure; in view of that *Power*, which has so mysteriously formed the tabernacle that contains the *immortal part of man*.

The day is fast passing away, in which pretensions to mystery mislead community, and knowledge is confined to the few.

Where is the contemplative mind that would not be delighted with a knowledge of the formation of bone, that would not trace with delight the formation and offices of the muscular and nervous systems? And, contemplate with pleasure the functions of the lungs, and other internal viscera! And the heart in its operations as the source of circulation, and the vascular system as completing this wonderful phenomenon, by which the body is constantly supplied with a sufficient quantity of nutriment to repair any loss the system may have sustained, and keep it in perfect form? And when he has traced this circle, and views the almost innumerable parts, and their perfect union with, and necessary dependence on each other, we will not wonder if he exclaims, "strange that a harp of thousand strings should keep in *tune so long*."

For here, in viewing the constituents of the animal body, we are led to contemplate and admire the great principles

that move the system from the minutest embryo, by those regular and unerring effects of nature, which operate upon all living substances, whether animal or vegetable. The perfect man being formed in miniature in the germ, and from the earliest moment, the mysterious operations commence, immediately under the laws which regulate all the subsequent animal evolutions, which are governed in the human body by that principal, which, though under different denominations ; by Hippocrates, physis (nature) ; Aristotle, the moving or generating principle ; Boerhaave, impetum faciens ; Van Helmont, archæa ; others the visinsita ; vis vitea ; vital force, &c. &c. is the same self existing principle, more generally denominated the soul which steadily advances through its several grades, until it unfolds in perfect and rational existence, in not only involuntarily governing or controlling the moving principles of animal formation, but becoming volition or will itself ; which thinks, matures judgment, and acts, in all the future stages of increasing existence, being inseparably united with the properties that move into perceptible being the *grand machine*.

It is now, that among those who will exercise their own judgments, no fabricated theory is essential to explain the general course of natural phenomena.

From first principles reasoning, we ascend the rugged steep, and pursue the devious windings of nature, or trace her mysterious rounds by which she completes a perfect whole, bounded only in our researches by those events which must, during created time, repose alone in the bosom of the great first cause ; NATURE'S UNIVERSAL GOD.

I DEEM no apology necessary for presenting the first lines of the practice of surgery in this volume.

Every person is liable to be thrown into suffering by accident or disease, under every circumstance, and in all situations.

It is well known that surgeons are not always present, nor easily obtained, and when present, it is not possible for them to do every thing alone, that is frequently necessary to be done.

Important as it is that people should possess a knowledge of the art of surgery in order to render immediate assistance to those who suffer ; it is no less important, in order that the ridiculous notions and prejudices, that attend almost every nurse into the chamber of the sick ; and direct every thing that is done, may be left out the door, or be entirely forgotten.

With the knowledge that may be derived from this part of the work, in a few evenings reading, any person may be qualified to render effectual assistance in cases of accident, where now they are idle spectators.

In this work whoever takes the pains to read, will learn, that blood is as effectually staunch'd by tying a handkerchief or cord loosely round a limb, above a wounded and bleeding artery, and twisting a stick into it, as it can be by the surgeon's tourniquet.

And that instruments sufficient to perform any operation, may be found in any tolerably well furnished house.

And that all surgical cases can be described in our own language, and the treatment laid down in our own vernacular tongue ; and bones set, and operations performed by hands that have not been *dubbed surgeon*, and yet, strange as it may appear to some of the faculty, get well as soon and as effectually as if done under the *hocas pocus*, and technicality of their *esculapian honors*.

THE PRACTICE OF SURGERY.

OF INFLAMMATION.

EVERY part of the body, except the cuticle, hair, and nails, is liable to inflammation. There are two species : 1st. phlegmon, or phlegmonous inflammation, which forms a circumscribed swelling or cake. 2d. Erysipelas, or erysipelatus inflammation, which affects the small vessels on the surface of the body.

Symptoms of phlegmonous inflammation.

When any part of the body becomes thus inflamed, the most general symptoms are *pain, heat, redness* and *swelling*, in the part affected. The pain is increased on pressure ; and if there be much inflammation, the blood becomes buffy, indicating a feverish state of the system.

It always terminates either in *resolution, effusion, suppuration, mortification, or schirrhus* ; it terminates in resolution, when it ends in health, and no other affection takes place ; it terminates in effusion, when any of the fluids of the body are effused or thrown out of their natural vessels, as in dropsy ; it terminates in suppuration, when the part inflamed produces pus or matter ; it terminates in mortification, when the part becomes dead, and of a livid or black color ; it terminates in schirrhus, when the part becomes an indolent hard tumor or swelling, without producing any matter, and ending sometimes in cancer.

Causes.

Either too much fullness and tension, or too great debility and laxity of the body, may predispose to inflammation ; but a bad state of the blood, poison, contagion, cold and local injuries, are most frequently the exciting causes. Sometimes it appears to arise spontaneously without any perceptible cause.

Treatment.

If the inflammation run high and affect the system generally, small bleedings, cooling physic of epsom salts, or sulphur and cream of tartar, with diaphoretics, are proper ; and

in the commencement, in order to subdue the inflammation and discuss or drive away the swelling, first apply leeches to the part, and then linen cloths, kept constantly wet with a solution of soft water ; or of one scruple of sugar of lead to three gills of water and one of vinegar ; or of two or three drachms of sal ammoniac to a pint of vinegar. The effect of these applications will be to abate the inflammatory action, and to stimulate the absorbent vessels to take up the extravasated fluid, and thus prevent suppuration. In some constitutions, however, inflammation is best removed by warm fomentation, such as a decoction of poppy heads, or of wormwood, tansy, &c. No rule can be given to determine this matter, as the greatest surgeons are frequently compelled to change their applications. Use the cold applications first, and if they do not seem to give relief, then try the warm. But if none of these applications abate the swelling and inflammation, and the part seems determined to suppurate, then apply warm emollient poultices of bread and milk, flaxseed, or slippery elm, and renew them before they get cold or dry ; these will promote the formation of matter, or suppuration, and the sooner it is done the sooner will the inflammation be at an end. The boil, tumor, abscess, or swelling, may then be opened with a knife or lancet.

Symptoms of erysipelatus inflammation.

The swelling is diffused, not very prominent, and of a bright scarlet color, tinged with yellow. Erysipelas is apt to spread rapidly on the body and to a great extent ; when pressed with the finger the color leaves the skin, but soon returns. The pain is of a burning or itching kind. Sometimes this disease changes its seat by leaving one part and attacking another. It may terminate either in *resolution*, *suppuration*, or *mortification*. When it terminates in resolution the disease gradually abates, and the skin peels off in branny scales. Suppuration is to be dreaded, and mortification still more. For the causes and treatment of erysipelas, see page 72.

SUPPURATION.

WHEN suppuration proceeds too slowly, it may be hastened by hot fomentations to the part, and by taking bark, wine, and nourishing food.

The modern doctrine of suppuration is, that the pus is secreted and separated from the blood in the same way as ordinary secretions take place, by the operation of the arteries. The change is gradual, and hence, pus and coagulating lymph are often found blended together in the same abscess. True pus is of the consistence and color of cream without smell or taste, and will commonly sink in water, but does not unite with it unless the water be heated.

The sudden abatement of inflammation, with chills, sense of weight, and stinging pain in the part, or a pointing out of the swelling, and soft fluctuation in the centre, are proofs that suppuration has taken place.

If hardness remain after opening, a poultice may be applied, lint being first placed in the orifice to prevent the growth of proud flesh; and as soon as the cake disappears the poultice should be discontinued, and the abscess treated as a common ulcer.

MORTIFICATION.

If any inflamed part have sufficient power to undergo the excitement, the inflammation generally ends in resolution or suppuration. But when the vehemence of the inflammation is altogether disproportioned to the vital power of the inflamed part, so that the vessels can no longer act at all, mortification necessarily takes place.

Symptoms of mortification.

First, there is a sudden diminution of the pain and fever; secondly, a livid discoloration of the part, which from being yellowish, becomes of a greenish hue; thirdly, a detachment of the cuticle (outer skin) under which a turbid fluid is effused; fourthly, the swelling, tension, and hardness subside, and, on touching the part, a crepitus (crackling) is perceptible, owing to the generation of air in the cellular substance. While the disease is in this stage it is termed *gangrene*. When the part has become quite black and fibrous, and destitute of motion, sensation, and natural heat, the disease is then denominated *sphacelus*.

An unpleasant hiccough generally attends the occurrence of gangrene and sphacelus. The blood coagulates in the large vessels leading to the mortified part, for some distance above it, and this is the reason why the separation of a mor-

tified limb is seldom followed by hemorrhage. When any part of the body mortifies, the constitution suffers an immediate dejection; the countenance suddenly assumes a wild cadaverous look; the pulse becomes small, rapid, and irregular; with cold perspirations, diarrhea, sometimes even delirium.

But mortification may often take place without any preceding inflammation; it is then occasioned either by an interruption of the circulation, long continued pressure, long continued cold, violent bruises, debility, &c., and sometimes it takes place in the fingers and toes from causes which are not understood.

When mortification does not produce death, the mortified portion is surrounded by a white line, about which pus is formed, the dead part loosens, sloughs out, and leaves a suppurating ulcer. But otherwise, the mortification rapidly extends, and death soon follows.

Treatment of mortification.

As the disposition to mortification often extends some distance from the part already dead, a mortified limb should never be cut off until a stop is put to the expansion of the disorder, and a line of separation is seen between the dead and living parts. In the living parts there is still a high degree of inflammation, and consequently the same applications and treatment are proper for discussing the inflammation now, as in any other inflammatory stage; but the feelings and comfort of the patient must determine whether those applications shall be warm or cold. A drachm of nitric acid to a pint of water may be used for a wash. Or a strong decoction of oak bark may be used in the same way. Or a poultice of yeast and bran, or of bread and milk and powdered charcoal, is an excellent application.

When the inflammation around the dead parts has abated, and symptoms of debility show themselves, the liberal use of bark, wine, fermented liquors, a nourishing diet, opium, and cordials must be adopted. If delirium should occur, give camphor, opium, musk, or valerian, and apply a blister to the head. For the diarrhea, opium and chalk are the best medicines.

When mortification happens from an external local injury in a sound constitution; when it no longer spreads and the living margin appears red, the use of the tonics, such as bark, wine, &c., is unnecessary and improper. In the mortifica-

tion of the fingers, toes and feet, opium internally is the principal remedy, and the external applications should be emollient and soothing.

When a limb is so badly broken and torn to pieces, that mortification will certainly follow, it should be amputated immediately in order to prevent it.

BOILS, OR TUMORS,

ARE circumscribed, hard, and painful inflammatory swellings, of a deep red color, not generally larger than a pigeon's egg, and seldom attended with much general fever. It is a species of phlegmonous inflammation, and the proper treatment is there described.

When boils appear on any part of the body with only a slight degree of pain and inflammation, and there is no preceding indisposition, we may then disperse or discuss the inflammation according to the method laid down; but when they arise from preceding indisposition or bad habits of body, we may be sure that it is an effort of nature to get rid of some noxious matter, and their suppuration should then be promoted as soon as possible.

CARBUNCLE.

A carbuncle is a malignant kind of boil. They are sometimes as large as a plate, with a number of small openings on the surface, which discharge a bloody irritating matter, of a yellow or green appearance. It is one of the symptoms of the plague, and other malignant fevers, and is often attended with great danger. The sympathetic fever occasioned by it, is at first of the inflammatory kind, but soon degenerates into a typhoid nature. The natural tendency of carbuncle is to end in mortification; its progress to that state is sometimes rapid, and sometimes slow.

Treatment.

A free opening should be made in every carbuncle. An emollient poultice should then be applied, so that the matter and slough may escape, and make room for a healthy suppuration.

An emetic or cathartic should be given to clear the stomach and bowels, and the system is then to be strengthened by the

use of tonics, such as bark, wine, camphor, cordials, &c. and a nourishing diet. To relieve pain and irritation, opium is proper; and after sloughing has taken place, and the carbuncle has become an ulcer, then treat it according to the directions for treating ulcers.

BLIND BOILS.

THESE generally appear about the shoulder blades, back of the neck, the elbows, wrists, and hands, and about the joints of the lower extremities; the appetite is poor, and the general health is declining.

Treatment.

Take a moderate dose of calomel every evening, and if it does not operate by morning, take a dose of rhubarb. Continue this course until the evacuations become of a greenish or dark color. Then discontinue the physic, and make a liberal use of bark and wine, with a nourishing diet. This will bring those livid lumps to a suppuration, and prevent the formation of others; every symptom of disease will disappear; the pale, wan countenance, will assume a florid and healthy appearance, and cheerfulness take the place of languor and irresolution.

ULCERS.

AN ulcer is an open sore. They generally appear as the termination or sequel of other diseases, as external injuries, inflammation, suppuration, mortification, &c.

When an ulcer is recent, it should be healed as quick as possible; but when it has been of long standing, or has become habitual, especially in an old person, a blister, seton, or issue, should be applied to some other part of the body while the ulcer is healing, and kept open for some time, after the cure is effected, as a substitute for the drain of the old ulcer. This precaution should not be neglected.

Ulcers may be divided, for practical purposes, into three kinds: *healthy ulcers*, *irritable ulcers*, and *indolent ulcers*.

HEALTHY ULCERS.

THE term *healthy* is applied to those ulcers which have a tendency to heal, in distinction from those whose tendency is

to degenerate, and so become worse and more difficult to cure. The matter in healthy ulcers is white, thick, and does not stick to the surface. The granulations, (growth of new flesh,) are small, red; pointed at the top, and rise no higher than the surrounding flesh; a smooth film begins to form from the skin at the edges, which spreads over the whole; this is the new skin which is to complete the cure.

Treatment.

All that is necessary is to keep the surrounding parts clean, to apply soft linen lint in order to absorb the matter, and to cover this dressing with a linen rag spread with simple cerate or any mild ointment; this prevents evaporation from the surface of the sore, which would otherwise cause the formation of a scab, and change the favorable condition of the ulcer. The dressing should be renewed every day and the ulcer thoroughly cleansed with warm water and Castile soap. Gentle and equal pressure may also be made, (unless after trial it should prove injurious,) by winding a bandage round the limb, which is beneficial in keeping the dressings to their place, and in the support which it gives to the muscles which are frequently loose and flabby from the want of natural exercise.

Irritable and indolent ulcers must become healthy before they can heal.

IRRITABLE ULCERS.

IRRITABLE ulcers have an undermined, jagged edge, the bottom has unequal lumps and hollows, there is a thin gleety discharge, and the surface when touched is painful and bleeds.

Treatment.

The steam of warm water, and fomentations with a decoction of poppy heads night and morning, are proper. The extract of elder, stramonium, hen-bane, or hemlock, (cicuta) dissolved in warm water, is an excellent application; and so are emollient poultices of ground flaxseed, under the poultice lay a piece of lint or cloth dipped in opium water, made by dissolving one drachm of opium in three gills of water. Carrots boiled and beat to a pulp may also be applied as a poultice. Bandaging must not be used. As soon as it assumes

the appearance of a healthy ulcer, it must be treated accordingly.

INDOLENT ULCERS.

THE edges of this kind of ulcer are thick, prominent, smooth, and rounded ; the bottom smooth and glossy, covered with a thin, transparent, glairy white ; or a tough, thick, white, matter, which can hardly be rubbed off. Sometimes these ulcers turn livid, and frequently a sloughing takes place.

Treatment.

Tonics should be given internally in order to strengthen the system. The external treatment has been to touch the sore with lunar caustic, or to apply a solution of the same, or diluted nitrous acid, or the ointment of the nitrate of mercury. Or to sprinkle on red precipitate, and over it to apply lint or salve, with a tight bandage, and night and morning to bathe with a decoction of oak bark or walnut leaves, or in weak lye. These were the best means known, until Mr. Baynton's new and successful method of healing indolent ulcers was laid before the public, which is to apply strips of adhesive plaster round the limb, so as to cover the sore and at least one inch of the parts both above and below it. The strips should be two or three inches broad, and long enough to go round the limb and leave an end of four inches long. The middle of the strip is then to be applied to the sound part of the limb immediately opposite to the lower part of the ulcer, so that the lower edge of the strip, when brought round, may come about an inch below the edge of the sore ; the ends are then to be drawn over the sore as tight as the patient can well bear. As many strips are to be applied in this manner as will cover the whole surface of the ulcer, and one inch of the limb below and above it. A compress of soft cloth may be laid over the part, and the limb rolled in calico bandages. The dressings are then to be kept moist with cold spring water, which keeps off inflammation, and enables any one to remove the strips and renew them without hurting the patient. By adopting this method of cure, the scar is much less, the ulcer less likely to break out again, and the patient may walk about and attend to his business.

BURNS AND SCALDS.

THE old practice is to plunge the part into water, and afterwards frequently to wet it with a liniment composed of equal parts of lime water and olive oil, or with a solution of sugar of lead in water. Or emollient poultices may be used, and some kind of physic given in order to lessen the inflammation. If mortification threatens, the system is to be supported by tonics, and the same external applications are proper as those which are recommended in the treatment of mortification.

According to the new practice, the part is to be immediately bathed in camphorated spirits, rectified spirits of wine, or alcohol, then to apply plasters of yellow basilicon ointment moistened with oil of turpentine, and spread on linen cloth, to remain on twenty four hours, and then to be renewed with as little exposure to the air as possible. It is therefore recommended to have plasters ready spread before removing the old ones, and then only take off one piece at a time. As the inflammation diminishes, the exciting means are to be diminished, and warm spirits or laudanum may be substituted for alcohol, and the plasters moistened with camphorated oil instead of turpentine.

The furrows between the sloughs and lining are to be filled with powdered chalk, and the growth of proud flesh (fungus) is to be prevented by the same application. Pain and irritation are to be allayed, by giving opium internally, and if the life of the part be destroyed, an emollient poultice may be applied until it sloughs, then proceed as in mortification.

Stramonium ointment, or an ointment made from indigo weed is a good application for burns.

FROZEN LIMBS.

THE only safe way of thawing frozen limbs is to rub them in snow, or in water with ice in it, until feeling and motion returns. Then continue the friction by rubbing with brandy, camphorated spirits, or tincture of myrrh. Let him then be put into a bed in a warm room, giving mulled wine occasionally, and there let him remain till a perspiration appears, and a perfect recovery of sensibility takes place.

The sudden exposure of a frozen limb to heat, should be carefully avoided; it occasions inflammation, mortification, and a loss of the limb, if not of life. If the whole body is

frozen, treat it in the same way ; and if signs of life appear, apply hartshorn to the nose and blow into the lungs—but never use tobacco injections.

If the patient has been imprudently exposed to heat, still persevere in the treatment as above directed ; and if inflammation, mortification, or ulceration takes place, you will find the proper treatment under those heads.

CHILBLAINS.

CHILBLAINS are red tumors which generally appear about the heels, and are caused by the sudden exposure of the part when cold, to the fire, or when hot to intense cold.

They are attended with intolerable heat, itching, pain, and soreness ; and after a while they burst and form ulcers, which are slow to heal, and sometimes turn black and mortify.

Treatment.

When they first appear, immerse the part three times a day in ice cold water, dry them well after each immersion, and cover with socks. If they inflame, wash them with a solution of sugar of lead in water, or with diluted muriatic acid, camphorated spirit, alum-water, spirit of turpentine, or balsam copaiva. If they ulcerate, apply warm vinegar, lime water, or quick ley ; touch them occasionally with lunar caustic, or sprinkle on red precipitate, and apply simple ointment.

WARTS.

MOISTEN them every day with aqua ammonia, or tincture of cantharides. Or wet lunar caustic and rub on the wart. Or frequently wash them in a strong decoction of oak bark, continue it some time, and the cure is certain.

CORNS.

DISCONTINUE the use of tight shoes, and then spread eight or ten pices of linen with some kind of soft ointment, lay them over each other on the toe, with a hole cut in the middle to fit the corn, so that there will be no pressure on it from the shoe or stocking. Wear this a few weeks, and the corn will disappear.

Or make a plaster of two ounces each of beeswax and gum ammoniac, with six drachms of verdigris ; apply to the corn, and after wearing it a fortnight, the plaster may be removed if necessary. Corns may be cured by rubbing them with lunar caustic ; or by drawing a blister larger than the corn, by which the corn is raised up with the plaster.

SCIRRHUS OR CANCER.

AN indolent, hard, unequal tumor, without any discoloration of the skin, is called a scirrhus ; but when itching is perceived, with a pricking or shooting pain in the part, and a puckering or corrugation of the skin which changes to a leaden color, and adheres to the parts beneath, it is termed a cancer.

Before a cancer has arrived to a very large size, it generally ulcerates, throwing out sloughs, and a mixture of matter ; leaving a large chasm, the bottom of which is uneven and ragged ; the edges thick, hard, jagged and painful. Sometimes it spreads rapidly, with alarming bleedings, and great debility. At other times it seems to be healing for a while, but the new flesh shoots out fungus and bleeding lumps, which cannot be controlled. At length other parts, become affected ; cough, and difficulty of breathing come on, and death puts a welcome end to the sufferings of the patient.

Treatment.

An operation with the knife is the most effectual remedy—but even then, it will sometimes return, in consequence of a constitutional tendency, or from the whole not having been removed : but on the whole, the balance of evidence is in favor of its being successful, if performed early, and to a proper extent. It is advisable in the operation, 1st. To make the external wound sufficiently large, and in the direction of the muscles beneath. 2d. To save enough healthy skin to cover it. 3d. To tie every blood vessel from which subsequent bleeding might be apprehended. 4th. To bring and keep the edges of the wound in contact with each other without having any dressing between. 5th. Not to meddle with the parts too soon, but to keep them in an easy and steady position for some days before they are examined. 6th. To use only mild and cooling applications during the cure.

If the patient however will not consent to an operation, or from any other circumstance it should be deemed unadvisable.

ble, topical applications and internal remedies may then be tried. Constant pressure on the part, and an equal temperature by means of a piece of rabbit's skin with the fur inside, has been recommended. The application of the fresh bruised leaves of poison hemlock, (*cicuta*,) or of scraped young carrots—fermenting poultice of yeast and oatmeal—finely powdered chalk, or charcoal—carbonic acid gas confined round the part in a bladder—a watery solution of opium—liquid tar, or tar water, &c., may be used sometimes with advantage. The internal remedies which have been most beneficial are, arsenic in very small doses gradually increased; night shade; stramonium; corrosive sublimate; (these are all very powerful, and must be used in small doses;) opium, and the muriate of iron. The galium aparine (goose grass, cleavers, or cleavers' bees,) in decoction internally, and the herb applied as a poultice, has been said to cure cancers. But none of these remedies can be depended on.

GANGLION, OR WEEPING SINEW.

It is a small hard tumor, composed of a little sac, and containing a fluid resembling the white of an egg. It is usually moveable beneath the skin; its growth is slow, being seldom larger than a hazelnut. It has generally a rounded shape, smooth and even; seldom inflames or suppurates, but when it does, it becomes an unhealthy ulcer. They adhere by a slender neck to a tendon, and are generally caused by sprains or bruises.

Treatment.

As good a method as any is to break them; draw the skin tight with the fingers of the left hand, then with the palm of the right, strike it suddenly and burst the sac. The fluid is then absorbed, and a perfect cure follows.

Binding a piece of lead on the ganglion with a bandage is a good method of dispersing them. Oil of origanum or hartshorn, may be rubbed on the part—or cut them out.

VARIX, VARICOSE VEINS, OR ENLARGED VEINS.

THESE are most apt to appear in the legs. Slight affections of this kind may be cured by rolling a bandage neatly from the toes to the knee, so as to produce equal pressure; it

should then be constantly kept moistened with cold water, snow, brandy or alum in vinegar.

ANEURISM, OR ENLARGED ARTERY.

THE first thing perceived is an unusual pulsating tumor, keeping time with the beat of the heart. It is free from pain, the skin over it is of the natural color, disappears when pressure is made on it, but immediately reappears when the pressure is taken off. As it continues to grow larger the pulsation increases.

Whenever an aneurism of a large artery bursts, and an instant compression of the artery between the aneurism and the heart is not made, instant death is the consequence. In such cases, if a tourniquet should not be at hand, a handkerchief with a stick in it may be instantly twisted round the limb till the blood stops.

Aneurisms sometimes occur spontaneously from a diseased state of the artery. At other times they are occasioned by wounds, or by sudden and violent strains.

Treatment.

Internal aneurisms are beyond the reach of surgery. When situated externally, and the artery is not otherwise diseased, they may be cured by a constant compression of the tumor, or by taking up and tying the artery. A soldier who had an aneurism of the crural artery as large as a man's fist, was cured in twelve months by the constant application of ice to the tumor.

FLESHY POLYPUS OF THE NOSE.

EXTRACTION is the most effectual cure. The operation is performed with polypus forceps, the insides of which are rough and perforated by holes, in order more firmly to take hold of the tumor. In the first place, take hold of the fore part of the polypus with a pair of small common forceps, held in the left hand, and very slowly and gradually draw forward the tumor so as to stretch it and render it narrower, in order to make room for introducing the polypus forceps, with which the tumor is then to be grasped, as high up as possible; twist it slowly round, and at the same time pull forward, until the polypus breaks. If the part extracted is very narrow where it has broken off, and the patient can breathe freely through

the nose, it is very likely that the polypus has given way at the root : but if it should not be all extracted, introduce the forceps again, and take it out by piecemeal. If bleeding is very profuse, inject ice cold water, or brandy into the nose—or roll a piece of lint round the end of a probe or wire, wet it thoroughly with a strong solution of white vitriol, introduce it into the nostril and press it strongly against the part.

It is the advice of some eminent surgeons that those which are attended with pain in the forehead and root of the nose, which have always been red, and continue of the same size, which bleed spontaneously from slight causes, and are hard to the touch, should not be meddled with—as a polypus of that kind is malignant, and the irritation attending the extraction of it is dangerous.

ENCYSTED TUMORS.

THESE swellings are composed of a cyst or bag which contains matter, and which frequently grows to an astonishing size. When they first appear, discutient applications are proper for the purpose of discussing the tumor, such as sal ammoniac, &c. If these should not be successful in removing it, cutting it out is the only cure.

To do it well, the flesh must be separated from the tumor without wounding the cyst or bag ; for if that happens the contents will flow out, and the cyst then of course will collapse, which renders the operation more difficult. Every part of the cyst should be removed, otherwise the wound will not heal in consequence of fungus granulations, or proud flesh, arising from the diseased part.

After the operation, bring the edges of the wound together with straps of adhesive plaster, and put on a compress and bandage.

SARCOMATOUS TUMORS.

THESE are fleshy tumors, not contained in a perfect globular cyst, like that of the foregoing swellings.

Treatment.

Endeavor to stop the growth of the tumor by local bleeding with leeches, &c., frequently repeated, and by the application of linen wet with sub-acetat of lead, (litharge and vinegar boiled together.) If the enlargement of the swelling

should be arrested, the next object would naturally be to promote the absorption of it. This is generally attempted by using mercurial frictions, blisters, and stimulating applications; but these attempts frequently fail, because if you stimulate a tumor too much, it is apt to slough, and leave a bad sore: and if you do not stimulate so much, still the irritation will sometimes renew the increased action, and the tumor then grows larger.

For this reason, the removal of it with the knife is perhaps the best remedy after all, for while it is yet small it may be taken out with perfect safety. In the course of a few years, however, they sometimes become so large as to weigh fifteen or twenty pounds, and cutting them out then is a dangerous operation.

RUPTURE.

THIS is a protrusion of some of the intestines through the sides of the belly, and raising the skin and fat which is over it. It is not in consequence of laceration or tearing; it is occasioned by a relaxation of the parts from straining. The bowels are not kept in their place by a strong sac or bag; for the sides of the belly are made by an overlapping of the flat muscles which bend the body forward and sideways. In violent straining, the edges of the muscles which overlap give way from each other, and the bowel escapes between them, carrying the lining of the belly along with it.

Treatment.

Whenever it can be done without violence, let it be reduced by the hand by gently pushing the gut back to its place; then put on a bandage to keep it there until a truss can be had. If a rupture cannot be reduced, it should be supported by a bandage, and costiveness, irregularities, and all pressure and bruises, are to be avoided.

If heat, pain, or inflammation should come on, apply cloths dipped in cold water, or snow, or in a solution of white vitriol, or sugar of lead in cold water; bleed if necessary, and give an injection.

KING'S EVIL, OR SCROPHULA.

WITH respect to the local treatment of scrophulous tumors it is only necessary to remark that when favorably situated

they might be safely cut out like any other tumor. But when the patient is of a scrophulous habit, inheriting the disease from his parents, (which is most generally the case,) the operation is not to be recommended; for what advantage could there be in removing one effect, while the cause that produced it still remains in the system?

WHITE SWELLING.

THIS generally attacks the large joints, the knee, the ankle, the elbow. In the first stage of this affection, the appearance of the skin is perfectly natural. The pain is felt at one particular part of the joint, which although severe, does not generally at first produce much enlargement. The little hollows of the joint are first affected by the swelling, which soon becomes stiff and crooked.

In the next stage of the swelling, the joint has attained a very enormous size, the skin not much altered, but smooth and shining, with a few red veins running over it. Openings then shortly make their appearance with discharges, which sometimes heal, but soon break out again. The health grows poor, and finally hectic fever comes on.

Treatment.

Keep up a continual discharge by the application of blisters first on one side and then on the other. Issues may be used, but are not so beneficial as blisters. After the openings appear, it is generally necessary to save life by taking off the limb.

FEVER SORE.

Is the inflammation and ulceration of a bone. In the *first stage* of the complaint, there is a dull, deep seated, aching pain, which is very distressing, and rapidly injures the general health. The part then begins to swell, and to form a hard tumor, which is attended with inflammation, an increase of heat, with redness, and great sensibility of the skin. In this stage, the *treatment* should be to give opium and apply blisters and fomentions to the part until the pain subsides, and then to use friction with mercurial ointment.

But if the disease goes on to the *second stage* in which the pain and inflammation continues severe and constant, with great constitutional irritation, a quick hard pulse and white

tongue, the patient is then soon attacked with severe agues—an undulation of the tumor is perceptible; ulceration takes place, and a thin acrid matter is discharged. The formation of matter is sometimes slow, and sometimes rapid. By examination, a cavity will be found leading into the bone.

Treatment.

If the treatment of the first stage should fail, then lay the whole open by a free incision, and after the operation, soap and water may first be injected into it, and afterwards, a weak solution of carrosive sublimate; then by using a compress and bandage the abscess will commonly heal.

WHITLOW, OR FELLON,

Is a painful inflammatory affection at the end of the finger. There are four kinds, distinguished by the depth at which they are situated in the finger. The *first* is seated immediately under the outer skin, and called a *run round*. The *second* is seated under the true skin, more painful than the first. The *third* is seated under the muscles. The *fourth* is seated on the bone.

Treatment.

Those of the first two species should be immersed in warm water or lye, or a soft fomentation applied, and repeated until it suppurates. It may then be opened.

Those of the last two species should be laid open down to the bone as soon as the second or third day. By neglecting this, the loss of the bone, or limb, will be endangered. Lint, moistened with laudanum, or spirit and water, may then be applied to it.

CEDEMA

Is a pretertural accumulation of a watery fluid in the interstices of the cellular substance under the skin. The skin of the swollen part retains its natural color, though rather paler. It feels cold, and pressure on the part occasions a pitting which remains for some time; there is uneasiness or a sense of weight and tightness; when then limb hangs down the swelling is increased, and is decreased by an opposite posture.

Causes.

It may depend on constitutional or local debility ; contusions, sprains ; long continued use of relaxing poultices and washes ; previous inflammation of the part, &c. It is also sometimes occasioned during pregnancy from the pressure of the uterus on the iliac veins. The proximate cause of œdema seems to be a debility or loss of tone of the vessels, or a mechanical impediment (as in pregnancy) preventing the free return of the blood towards the heart.

Treatment.

When occasioned by pregnancy, no cure can be expected until nature effects it, by removing the cause. When occasioned by debility, the grand object is, to re-establish the tone of the vessels, and promote the absorption of the extravasated fluid. To accomplish this object, the limb should be kept in a horizontal position, and a rigid persevering use of friction with a flesh brush, or with flannel fumigated with aromatic vapours, should be pursued. This will have a tendency to rouse the absorbents into action. At the same time, purgatives, diuretics and emetics, are to be used internally.

If the swelling does not soften under this plan, but becomes more tense and painful, mortification must be prevented by making a small puncture and discharging the fluid. The punctures should be very small, and carefully made, otherwise the irritation from them will produce the effect intended to be prevented. Use no bandage now ; keep the part wet with sub-acetat of lead, or a solution of sugar of lead in water and vinegar ; give cooling purgatives, salts, &c., and live on a spare diet. In cases not attended with inflammation electricity is useful.

PHYMOSIS AND PARAPHYMOSIS.

Phymosis is when the fore skin cannot be drawn backward.

Paraphymosis, is when the fore skin is drawn back, and cannot be drawn forward again.

Paraphymosis is of almost an every day occurrence, occasioning alarm to the parents, unnecessarily if they but knew how little skill is requisite to set all to rights.

I was called to a child, (at midnight,) not long since, in the above situation, I found the family in tears, the child con-

vulsed, from the stricture of the fore skin which prevented entirely the passage of urine : it was the fourth day after the occurrence. I called for a bowl of cold water, and bathed the part well in it, at the same time pressing the blood back by making gentle pressure with the part between my thumb and finger. In a few minutes I brought the fore skin gradually forward, the little boy passed the urine, went to sleep, and I went home.

A few days after this I saw the father of the child, and he informed me that Dr. ——— was immediately called, upon their discovering the difficulty with the child, and he readily decided that it was broken and enquired of the rest of the children to know by what mischievous feat it had been done. He finally prepared a large poultice and did it up, calling two or three times a day to direct new poultices, over haul the dressings, interrogate the children, &c. &c. He called the morning after I had reduced it, and though by this his ignorance was informed, his obstinacy was excited and he declared if they had continued the poultice until morning it would have got well of itself. About the same time there was a case in which one of my neighbors officiated, (for want of a physician) with complete success although he had never heard of such a thing before. So you see doctors may make mistakes as well as other people. If the case is natural, and does not amend as the child advances in life, he must be circumcised.

WOUNDS.

By a wound is implied a recent sudden breach in the continuity of the soft parts.

Wounds are divided into the *incised*, *punctured*, *contused* and *poisoned* kinds.

MEANS OF STOPPING HEMORRHAGE, OR BLEEDING.

THE blood that flows from a wounded artery is of a bright scarlat color, and gushes from the vessel *per saltum* (unsteady, by jerks.) The blood from a vein is of a dark red purple color, and issues in an even stream.

Pressure, to check the effusion of blood from an artery, must always be made on the side of the wound *next* the heart. And as the blood of the veins runs in an opposite direction,

pressure must be applied on that side of the wound in a vein, which is most remote from the heart.

Pressure is the most rational and effectual means of stopping bleeding, and almost all the plans employed for this purpose, are modifications of it. The blood vessels have their own arteries, veins, and nerves, and are susceptible of inflammation, and ulceration, &c., like other parts. And it is by the process of adhesive inflammation, (the sides of the vessel growing together,) that a permanent check is put to hemorrhage. For this purpose the sides of the artery must be kept in contact.

The *Tourniquet* is the instrument used by surgeons to compress a bleeding vessel; but if you are present and a wound is received in the leg or arm, which causes a profuse, unsteady flow of bright red blood, do not wait for a surgeon, but instantly tie a handkerchief, or some other bandage loosely around the limb above the wound, and put a stick into it and twist it until the blood ceases to flow, and keep it in this situation until the bleeding vessel is tied. If it be a vein that is wounded, the pressure must be made below or on the wound. Pressure on the wound of an artery is seldom of any avail, it must therefore be made as above directed.

The *ligature* is used to tie the mouth of the bleeding vessels. The tourniquet, &c., being only used as temporary means of suppression, until the ligature can be applied.

Before the ligature becomes loose the sides of the vessels grow together. This is the only sure plan for securing large arteries. And this can be done when in performing an operation a vessel is divided, and the blood stopped, after which the operator can procede with safety and convenience.

The arteries should be tied quite separately, without any portion of the adjacent flesh.

The method of tying is as follows: the extremity of the vessel is first to be taken hold of with, forceps, hook, or a tenaculum, and then a cord (ligature) of proper size is to be placed in a loose knot, just below whatever the vessel is held with, it must then be drawn tight, and tied securely.

If the artery is large both ends must be tied, and in such cases, it may also be necessary to twist a bandage round the limb on both sides the wound.

One end of the cord should be cut off, and the other left hanging from the wound for the purpose of withdrawing it. Ligatures may generally be taken away in about a fortnight.

Compression; simple compression, is the applying compresses of lint, &c., tie the bleeding wound by means of a bandage, so that the bleeding is mechanically stopped.

This mode of compression, is applied to all small vessels that bleed.

Actual cautery, is the application of a heated iron. It operates by producing a slough which covers the mouth of the artery. It should never be used.

Potential cautery, is caustic; that most commonly used is blue vitriol rolled up in a piece of linen and bound upon the bleeding orifice, it operates similar to the hot iron, and if possible, is much worse.

Styptics are substances which have the property of contracting the vessels; such are cold air, cold water, brandy, spirits in general, diluted mineral acids, solutions of alum, blue vitriol, sugar of lead, &c. These possess the power of stopping hemorrhages from very small vessels.

PARTICULAR REMARKS.

When the bleeding vessel is ossified (bony,) or situated in a bony canal, a small dossil of lint, introduced into its orifice, will stop the blood. When an artery is cut only partly through, it bleeds more profusely than when quite divided, because it cannot shrink under the surrounding substance, nor contract itself.

When an artery is not cut entirely off a ligature must be placed both above and below the orifice, and tied, and then the artery must be divided.

Extraction of foreign bodies from wounds, is to remove all extraneous substances from the wound before applying dressings.

UNION BY THE FIRST INTENTION.

Wounds are healed by two processes, one in which pus is produced, and another in which no suppuration takes place, the latter is termed, *union by the first intention*, or *adhesive inflammation*.

This is always the desirable termination, because in this there is only these two indications to be fulfilled, viz: to bring the edges of the wound, into reciprocal contract and keep them so, and the other is to avert immoderate inflamma-

tion. The *part* must be so placed and confined as to relax the wounded integuments.

Uniting bandage is a double headed roller, (a strait bandage rolled up from each end to the middle,) having a slit in the middle, sufficiently large to allow one head of the roller to pass through it. But an ingenious person can always make a bandage and apply it, as the occasion requires, better than they could learn it from reading chapters on the subject.

When the wound is deep it will be well to place small longitudinal compresses beneath the bandage, at a little distance from the edge of the wound.

ADHESIVE PLASTER,

Is preferable to any other method of keeping the edges of the wound together in all cases, practicable; for it must be recollected, though stitches must some times be used, that they of necessity irritate and produce additional inflammation. Adhesive plaster is applied in strips, between every two of which a space must be left to allow the escape of matter. The strips must be narrow, or a space must be cut out to allow the escape of matter, the edges of the wound must be brought in complete contact, and the strips warmed, must be laid across, in such a manner as to cover as little of the wound as may be. The plaster must be spread on linen, or thin leather: see receipt for making adhesive plaster.

SUTURES.

Interrupted suture, is made by a curved needle, (though any needle may be used to stitch a wound;) which has a double edge for one third of its length, and its broadest part being broader than the ligature.

The lips of the wound being first brought together; the needle armed with a ligature, (made of a few threads of silk and waxed,) is introduced into the one lip of the wound near its edge, and is to be directed through the edge of the other lip: the needle must then be cut off, and the ligature tied in a bow. These should be an inch apart, straps of plaster must be used at the sametime if necessary.

Quilled suture, so called from a quill, or something similar in form being used in making it. The same needle (or any other) is used as for the above, but it must carry a double ligature, have two in the eye: these are introduced through

the wound at as many places as is necessary, and then the ends are separated, and tied on each side in a bow, over a quill or any such thing, placed along the side of the wound. This is used in very deep wounds.

PROCESS BY WHICH THE WOUND IS UNITED.

WHEN the wound is treated as above described, the vessels cease bleeding, and throw out coagulating lymph, which is the general bond of union between all living parts. But it is probable that in many cases where the wound is closed before it stops bleeding, that the blood itself is the first bond of union. The coagulating lymph, immediately after agglutinating the sides of the wound together, is filled with vessels which join with the vessels of either side, which render the union perfect.

If people will dress wounds as above directed, we shall not see wounded limbs loaded down with rags, and wet in whiskey, and every salve that can be found daubed on which delays for weeks and months the union of a wound, that might be effected in seventy two hours.

PUNCTURED WOUNDS,

ARE dangerous on account of their penetrating to a considerable depth, injuring important blood vessels, nerves, &c. and as they frequently give rise to extensive inflammation. Stabs always tear, lacerate the fibres of the body, and hence their slowness to unite and liability to form large collections of matter, and many constitutional symptoms that are not observable in simple wounds.

Treatment.

Incisions are never to be made, unless to remove foreign bodies, or to open sinuses that may have formed, for they sometimes heal as readily as any others. All that is necessary ; is to introduce a tent of lint to keep the wound open, and pass a probe daily through its whole brack, and there will be but little danger of collections of matter, or sinuses forming.

LACERATED AND CONTUSED WOUNDS.

A LACERATED wound is made by tearing the parts asunder,

the edges are consequently rough and jagged. The blood does not issue profusely from lacerated wounds, even though a large vessel be ruptured. Whole limbs have been torn from the body, and yet not followed by dangerous bleeding.

Treatment, clean the wound, and bring the parts as near as possible to their natural position. The patient must be kept quiet, and if of a full habit, he must be bled, and the antiphlogistic treatment pursued proportionate to the probability, or presence of inflammation. If there is much pain, and swelling of the part, apply a warm emollient poultice, and give a pill of opium. If the parts mortify, and slough off, the treatment laid down for mortification is proper.

Contused wounds are made by a blunt instrument, which does not break the skin.

Treatment, if slight, cover the part with linen, wet with vinegar, brandy, &c. Or with mineral water made of; sugar of lead one drachm, soft water, half a pint, vinegar and spirits, of each a half a gill, mix. If the contusion is great, bleeding and saline purgatives, with the above applications to stimulate the absorbents will be necessary. If the skin and flesh dies, treat as directed for lacerated wounds.

POISONED WOUNDS.

THESE are made by the stings of bees, wasps, hornets, and the bite of animals, vipers, snakes, &c. &c.

Stings are to be treated by the application of vinegar, lemon juice, cold water, hartshorn, oil, and opodeldoc. If there is much swelling and pain, bleeding, salts and spare diet will be useful.

Bite of the viper, the poison of the viper is contained in a sac at the roots of the fangs, or teeth of the upper jaw, and is pressed out when it bites. In ten or fifteen hours after the bite, pain and burning is felt in the wounded part. These with swelling spread over the limb, and sometimes over the whole body, attended with dejection of spirits, small weak pulse, headache, nausea, and vomiting, fixed pain in the breast, yellow tinge of the skin, cold sweat, and convulsions, which sometimes end in death.

Treatment.

The wound should be immediately cut or burnt out, and this new wound washed with soap suds, or a solution of caus-

tic alkali, and the patient may take, opium, camphor, musk, and hartshorn.

Bite of the rattle snake, produces sickness at the stomach, the whole body swells, the eyes are suffused with blood, the pulse is strong and agitated, the sweat is sometimes bloody, the nose bleeds, and the teeth chatter; and the sufferer utters interrupted groans.

Treatment, the same as for the bite of the viper, apply to the wound a poultice of quick lime, with oil. The fresh juice of plantain is, by some considered as an antidote.

For bites of mad animals, see hydrophobia, page 55.

BLEEDING, OR VENESECTION.

It is necessary to make pressure on the vein, betwixt the place where the puncture is to be made and the heart; in whatever part of the body venesection is to be performed: this prevents the return of the blood to the heart, and the vein consequently swells, and bleeds freely.

The bend of the arm is the most convenient place to perform the operation. A bandage must be tied around the arm a little above the elbow, but not so tight as to stop the artery at the wrist; this would cut off the supply of blood.

You must always feel if there is pulsation beneath the place where you design to make the puncture, and if there is pulsation, it will be best to take an other vein, or operate on the same, where the artery cannot be felt if practible; but if it can be done in no other place, be careful and not cut through the vein as the artery might be wounded.

Select the vein that rolls least, and always fix it as much as you can by placing the thumb of the left hand a little below the place where you intend to introduce the lancet.

The lancet must be pushed into the vein in an oblique direction; and when the point is a little within the cavity of the vessel, bring the front edge of the lancet, obliquely forward and upward, so as to render the opening sufficiently large. There is no particular shape necessary, and a pen-knife, or any sharp pointed instrument will answer, though the lancet in common use is most convenient.

When a sufficient quantity of blood has been taken, the ligature is to be removed, when the blood generally ceases to flow, and always so when compression is made below the orifice. The arm is now to be washed, and the edges of the

wound brought in contact, and kept so by a small compress of lint, or cloth, by applying a bandage round the arm in form of a figure of eight.

When venesection is performed in the vein (external jugular,) of the neck, the pressure is made by the thumb.

Arteriotomy is performed in the temporal artery, and its branches only, because the blood can be stopped by compressing the artery against the temporal bone.

Venesexion may be performed by any careful person with perfect safety.

ILL CONSEQUENCES FROM BLEEDING.

Echymosis, or thrombus, is caused by the bloods insinuating itself into the adjacent cellular substance, in consequence of the skin covering part of the orifice of the vessel. This blood is generally absorbed in a few days, and this should be favored by the application of vinegar, spirits, &c.

If *inflammation* arises, it must be treated by the usual antiphlogistic means.

DESCRIPTION OF PLATE V.

1. Part of the biceps flexor cubitii.
2. The fascia tendinosa from that muscle, which is liable to be pricked in bleeding in the basilic vein.
3. The humeral artery, on each side of which is a large vein.
4. Vena cephalica.
5. Mediana.
6. Basilica.

GUN SHOT WOUNDS,

ARE produced by hard obtuse bodies, projected from some species of fire-arms, and are referable to three principal causes; 1st, the kind of body projected; 2d, the velocity of the body; 3d, the nature of the parts injured.

1. *Kind of body*: bullets are the most common kind of bodies shot into the injured parts; but the wound is sometimes produced by cannon balls, pieces of broken shells, and on ships by splinters of wood. Large irregular bodies obviously occasion more mischief, than such as are of a moderate size, and smooth and round. Pieces of clothes are often carried along with the ball into the wound.

Gun shot wounds are always attended with contusions and lacerations, by which some of the fibres around the wound are deadened, and must slough off; hence they seldom unite by adhesive inflammation, or are attended with profuse bleeding, unless the ruptured vessels are very large.

2. *Velocity* of the body has considerable influence; for when a ball has passed with little velocity the wound often heals by the first intention; but not often when it has passed with great velocity. At the entrance of the ball the circumference is depressed, at its exit prominent.

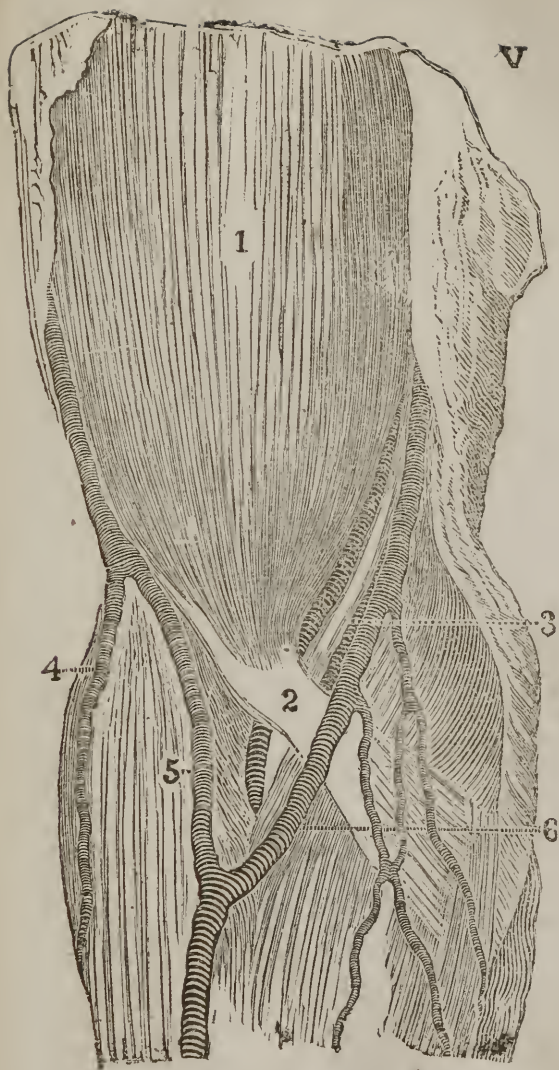
On account of the parts surrounding a gun shot wound being often deadened, the extent of the injury cannot always be comprehended, till the dead parts slough off.

3. *Nature* of the parts injured. When a gun shot wound only injures soft parts of ordinary importance it is termed simple.

When at the same time it fractures a bone, wounds a large artery, nerve, or any important part it is called compound.

The *ball* is directed in its course by the variety of density and power of resistance in the part receiving it. Thus some balls are forced into the most strange courses, passing nearly all round the body immediately beneath the skin. And the sloping direction in which the ball sometimes strikes, occasions serious injury without wounding the skin.

Extraneous bodies are more frequently met with in gun shot wounds than in any others; they are pieces of clothing, or other substances which the ball has driven into the limb; the ball itself, or loose splinters of the bone. These cause many bad symptoms, by irritating, exciting pain, inflammation, hemorrhage, suppuration, &c.





When a ball strikes a bone it produces concussion ; and if it strikes with much force, tearing the limb from the body, it affects the whole body in a violent degree, producing derangement of all the animal functions.

Treatment of gun shot wounds.

The first thing, if the wound is in one of the extremities, is to determine whether it is more advisable to amputate the limb, or try to cure the wound. Surgeons are too apt to decide on the former.

If a bone, at a joint, is shattered into numerous fragments, and the soft parts are extensively contused and torn, with injury of large blood vessels and the important nerves, and the whole limb is cold and insensible, it is obvious to every one that amputation is the only safe course to pursue.

But this pitch of injury is not always present, where amputation may be proper, and an opinion cannot be formed by a consideration of the extent of the injury alone ; but the patient's constitution, the probable accommodations, rest, attendance, pure air, &c. must be taken into the consideration. *Not forgetting*, however, that the amputation of the limb will not *quite* cure the man, and that he may need pure air, attendance, accommodations, nurses, &c. notwithstanding the limb may be removed.

Humanity dictates that in the latter instance, every other means should be resorted to before amputation ; as wounds of the most formidable appearance frequently end well.

In accidents of this kind, there are two periods at which amputation can be performed ; the first is immediately after the occurrence of the injury before inflammation arises ; and the second is after the inflammation and mortification has been subdued.

The *wound should be dilated* no more than what is necessary, to extract foreign bodies, by means of forceps, or to take up, and tie ruptured vessels with convenience.

Dressing. But little or no hope of union by the first intention can be entertained, in wounds of this description. The dressing must be of the mildest description possible ; a pledget of white cerate, and an emollient poultice are the best dressings. The parts may be fomented once or twice a day with a decoction of poppies ; this diminishes pain and inflammation. A ready exit for the matter must be maintained, the wound kept as clean as possible, and during the inflammatory stage,

leeches, general bleeding and the whole treatment recommended for inflammation must be observed which is about all that the surgeon can usefully do ; varying his plans to the symptoms as they arise, as he would in any other kind of wounds.

After all the *hue* and cry about army surgeons, and their superior opportunities, and consequent abilities, an observer will find that all their skill is confined to the removing of limbs, taking up of vessels, and simple dressing of wounds ; unless indeed, we consider poking and probing, skill ; and unnecessary pain, and protracted suffering *science*.

The above is a condensed view of volumes on gun-shot wounds, written by these very surgeons.

OF GRANULATIONS AND CICATRIZATION.

GRANULATIONS are formed by an exudation of the coagulating lymph from the vessels of the wounded or exposed surface. Into this the old vessels extend, and new ones are formed.

Granulations have the same power to secrete pus as the surface that produces them. Their surface is very convex, having many points or eminences. The smaller these points are, the more healthy are the granulations, and if healthy the color is a deep florid red.

If the color is livid the granulations are unhealthy, and this color denotes that the circulation is languid ; position frequently produces this, and this is the reason why sore legs are so backward in healing when the patient is permitted to stand or walk. When granulations are healthy, and situated on a flat surface, they rise nearly level with the surrounding skin, but when they grow higher than the surrounding skin, become soft and spongy, they are unhealthy, and lose the power of forming new skin, (this is called proud flesh.)—Granulations partake of the same qualities, whether they grow from bone or from the soft parts.

By the formation of these granulations nature fills up deep wounds that cannot have their edges brought into contact. The sides of the wound it is true approach each other which part fills the cavity of the wound or ulcer. As the granulations contract and grow into each other, the old skin in part extends over the part which had been deprived of skin, and making the cicatrix (scar) much smaller than the original wound.

The new skin most commonly arises from the adjacent old skin ; but new skin will form on any part of the surface of a wound, however remote from the old skin.

TETANUS.

THE surgical treatment of tetanus is attended with but little if any more success than the medical treatment, but when it arises from a wound, it should be enlarged with the knife, and treated with caustic, or the use of the cautery may be tried. But if it arises from extensive wounds in a joint of one of the extremities, the immediate removal of the limb offers the only security for life.

INJURIES OF THE HEAD.

As the integuments of the head have some connection with the internal parts, by means of vessels, injuries of the scalp are not free from danger. And if abscesses result from contusions of the head, the matter should be let out as soon as its existence is ascertained ; and the opening should be made in the most depending part, that the matter may be completely evacuated, otherwise it might extend between the integuments and bone and cause serious results. In some instances contusions occasion a collection of blood beneath the expansion of the muscles. Mild purges, and lotions of vinegar and sal ammoniac, spirits, &c., commonly occasion the absorption of the effused fluid.

Cuts of the integuments of the head, are simple wounds. The hair should be shaved off, and the lips of the wound confined together by strips of adhesive plaster, and in every respect treated like any simple wound, unless the integuments become affected with an erysipelatous inflammation, this is particularly common in persons fond of the bottle, and in bilious habits. Bleeding, saline purges, and a wash made of sugar of lead will generally effect a cure.

Fractures of the cranium ; when the breach is very fine it is termed a *fissure*, when wide and open it is named a *fracture* ; when it happens at some distance from the spot which receives the blow, it is called a *counter fissure*. The same violence which breaks the cranium may occasion a concussion of the brain, an extravasation of the blood beneath the cranium, and a subsequent inflammation of the brain and its membranes.

In treating a fracture of the skull the principal object is to guard against inflammation of the brain; if this threatens to take place, and we are sure that it is caused by the inequalities of the fracture, pressing on the brain, we are then warranted in removing the fractured part with a trephine; but otherwise, all that we can do is to bleed the patient freely and repeatedly from the temporal artery and the arm, and prescribe saline purgatives and a low diet. The antiphlogistic regimen should be continued at least a month, for inflammation of the brain is very apt to come on even when the patient considers himself out of danger.

PRESSURE ON THE BRAIN FROM EXTRAVASATION OF BLOOD.

AFTER having been stunned by a blow on the head the patient sometimes recovers very soon, and sometimes remains senseless. We may know with certainty that extravasation of blood on the brain has taken place, if the patient soon recovers his senses, and then afterwards gradually relapses into a drowsy condition attended with the following symptoms, viz: the eyes half open, the pupil dilated and insensible to the approach of light; regularity and slowness of the pulse; with difficult and noisy breathing. These symptoms show the necessity of trephining the patient immediately. If any marks or bruises are visible, apply the trephine to that part of the head; but if none exist, the operation must yet be performed.

Pressure on the brain from matter produces the same sort of symptoms as have just been described; but the patient must have betrayed signs of inflammation in the head previous to their occurrence, and immediately over it there is generally a puffy circumscribed tumor of the scalp, and a separation of the integuments from the skull under the tumor. The trephine must be applied to give vent to the matter.

CONCUSSION.

WHEN the brain is violently shaken, the effect is termed concussion. The patient is stunned, and insensible, his extremities are frequently cold, pulse slow and intermitting. These (unless so violent as to produce death,) soon go off and sickness and other symptoms take place, which are soon followed by inflammation of the brain.

The patient must first be treated with something to revive him, and then he must be bled largely, his head must be blistered, and the whole antiphlogistic treatment must be rigorously pursued.

OPERATION OF TREPHINING.

EVERY person should be acquainted with the manner of performing this operation, that he may be able to render assistance when present, for the urgency of the case frequently demands immediate operation, and it is not often that more than one surgeon can be easily obtained.

This operation is performed for the purpose of removing a portion of the skull, for the sake of elevating that part of the bone that produces dangerous pressure on the brain, or to give vent to the matter or blood that has collected beneath the bone. The operation must always be attempted in a situation where a complete circle of bone can be taken out, and if any of the vessels which lie in the grooves of the bones should be wounded a small plug of lint will stop the hemorrhage. If the bone is not sufficiently exposed by a wound, the hair must be shaved off and a crucial incision made; shaped like the letter T or V. None of the scalp should ever be removed.

The incision must be made down to the bone at once. The impression of a vessel, or a suture, may be easily discriminated from a fracture or fissure, by a knowledge of the situation of the former, and by the undetached state of the pericranium in the latter, and by the edge of the fracture being always rough.

The trephine should never be applied on the depressed portion of bone, but on the solid bone, in a situation most favorable for the introduction of the elevator beneath the depressed bone for the purpose of raising it. After the scalp has been divided, all loose splinters of bone must be removed and if the depressed pieces causing the symptoms are loose, they should also be removed.

The surgeon first makes a small hole with a perforator, in which the centre line of the trephine is to be fixed. The crown of the trephine is then to be turned alternately in one direction and then in the other. As soon as the teeth of the instrument have made a groove sufficiently deep to keep the trephine steady the centre-pin must be taken out lest it should

penetrate through the bone and injure the dura mater. The saw must be occasionally removed and the bone dust brushed away. When the saw is pretty well advanced, the operation must be conducted with caution, and the operator must frequently examine with a pin or the point of a quill, to ascertain if any part is sawn through. And when any part is through, the pressure of the instrument is to be inclined to the parts that are not through, and it is better to use a little force in getting out the circle than to run the risk of wounding the dura mater by sawing too deep. And the operation must be performed in as many places as is necessary, the patient, if the operation is necessary is in a situation that renders him insensible to the pain of the operation.

When the circle is removed the elevator is introduced and so conducted as to raise the bone that presses upon the brain; the scalp is then to be laid down in its natural position, and dressed very lightly with a pledget of any simple ointment.

OF SPRAINS.

PLUNGE the part sprained into very cold water, and hold it there as long at a time as you can bear it, for several hours, then rub it well with camphorated spirits. If the accident has happened to a joint, as in the ankle, and it remains weak, pour cold water on it from a tea-kettle, held at a distance, several times in the day.

DISLOCATIONS.

WHEN a bone is moved out of its proper place, it is said to be dislocated, or out of joint. Any person of common sense and resolution, who is present when a dislocation happens, may render more service to the patient at the time, than the most expert surgeon can, after the inflammation and swelling have come on, which are sure to take place more or less by losing time.

A recent dislocation may generally be reduced merely by extending the limb, and the force employed must be sufficient to stretch the muscles which move the joint. When the bone has been out of its place for any length of time, and a swelling and inflammation have come on, bleed the patient, and after fomenting the part, apply soft poultices with vinegar before attempting to reduce it. After bringing the bone

to its place, lay on cloths dipped in vinegar or camphorated spirits, and keep the limb perfectly easy.

DISLOCATION OF THE LOWER JAW.

THIS accident, which is occasioned by blows, or yawning, is known by an inability to shut the mouth, and the projection of the chin. To reduce it, seat the patient in a chair with his head supported against the breast of an assistant who stands behind him. Your thumbs being covered with leather, are then to be pushed between the jaws, as far back as possible, while with the fingers outside, you grasp the bone, which is to be pressed downwards, at the same time that the chin is raised. The bone will then be found moving. The next thing to be done, which is all that is necessary, is merely to push back the chin; but when you do this, slip your thumbs between the jaws and cheeks, or else they will be bitten by the sudden snap of the teeth as they come together. The jaws should be kept closed by a bandage for a few days, and the patient live upon broth or soup.

DISLOCATION OF THE NECK.

WHOEVER will take the trouble to examine the human skeleton will see at once that it is much more easy to dislocate or put a bone of the neck out of joint, than to break it. It may be dislocated by falls, or violent blows. The person is deprived of all sense and motion, his neck swells, his countenance appears bloated, his chin lies upon his breast, and his face is generally turned to one side. If no assistance is given, the patient soon dies, which makes the people believe that his neck was broken. But most generally, it is only partly dislocated, and may easily be brought to its place by any resolute person. First, lay the patient on his back on the ground; then, without losing any time, place yourself behind him so as to be able to lay hold of his head with both hands, and place your knees firmly against his shoulders; in this posture pull the head towards you with considerable force, gently twisting it at the same time, if the face be turned to one side, until you perceive that the joints are replaced, which is known by the noise which the bones make in slipping in, by the patient's beginning to breathe, and by the head continuing in the natural posture. Women have performed this opera-

tion. After setting the neck let the patient be bled, and kept quiet for some days until the parts have recovered their tone.

DISLOCATION OF THE SHOULDER.

DISLOCATIONS of the shoulder are the most common of all accidents of the kind. It is very easily known by the deformity of the joint, and the head of the bone being found in some unnatural position. To reduce it, seat the patient in a chair, place one hand on the prominent part of the shoulder blade, just above the spot where the head of the bone should be, while with the other you grasp the arm above the elbow and pull it outward. Another method is to seize the elbow of the dislocated arm with the right hand, keeping it bent, and gently moving it from the body; then with the left hand, a large ball of yarn is to be crowded as far towards the armpit as possible; the arm is then used as a lever, and the ball of yarn becomes a bait and roller, over which the head of the bone is to be guided to its socket.

DISLOCATION OF THE ELBOW.

If the patient has fallen on his hands, or holds his arm bent at the elbow without being able to straighten it, it is dislocated backwards. Seat him in a chair, let one person grasp the arm near the shoulder, and another the wrist, and forcibly extend it, while you interlock the fingers of both hands just above the elbow and pull it backwards. The elbow is sometimes dislocated laterally or sideways. To reduce it, make extension by pulling at the wrist, while some one secures the arm above, then push the bone into its place, either inwards or outwards as may be required. After setting a dislocated elbow, the joint is to be kept at perfect rest for five or six days, and then move it gently. If inflammation come on, bleed freely, purge, &c. &c.

DISLOCATION OF THE WRIST, FINGERS, &c.

DISLOCATIONS of the wrist, fingers, and thumb, are readily perceived on examination; they are all to be reduced by forcibly extending the lower extremity of the part, and pushing the bones into their place. If necessary, small bands may be secured to the fingers by a narrow bandage, to facilitate the extension. These accidents should be attended to with-

out delay, for if neglected for a short time, they cannot be remedied.

DISLOCATION OF THE HIP JOINT, OR THIGH.

THE bone of the thigh may be dislocated in different ways ; but they require the same treatment, with but little variation, which will readily be suggested by the circumstances of the case. If dislocated downwards, the leg will be lengthened an inch and a half ; the knees will be forcibly separated from each other, and the foot turned outwards.

Lay the patient on his opposite side, with the knee bent so that it may form a right angle with the body. Then place your right hand on the outside of his knee, and your left hand on the inside of the thigh as high up as possible. Now with the left hand, raise the head of the bone from its new bed, and with the right hand, carry it to its socket. In doing this, the thigh is used as a *lever*, the right hand the *power*, and the left hand the *fulcrum*, *bait*, or opposing power.

DISLOCATION OF THE FOOT.

THIS seldom happens ; but if it should take place, let one person hold the leg, and another draw the foot, while you push the bone in the contrary way to that in which it was forced out. The part is then to be covered with compresses dipped in lead water, and a splint applied on each side of the leg, reaching below the foot.

FRACTURES, OR BROKEN BONES.

ALL that art can do towards the cure of a broken bone, is to lay it perfectly straight, and keep it quiet. Nature does the rest. Very tight bandages are injurious ; but as some method must be taken to keep the limb steady, and the bone to its place, two or more splints of leather or pasteboard, moistened before they are applied, will assume the shape of the limb, and assisted by a slight bandage, will be sufficient. If wood splints are used, care should be taken to prevent irritation from them, by interposing some soft substance between them and the limb. The splints should be as long as the limb, with holes cut for the ankle, if the leg be fractured. In fractures of the ribs, where a bandage is not alone sufficient, a strap of adhesive plaster will assist in keeping the

parts in place the patient should keep himself quite easy, avoiding any thing which may occasion sneezing, laughing, coughing, &c.

The best external applications for a fracture is a mixture of vinegar and water, with which the bandages should frequently be wet, especially if pain and inflammation come on.

It is generally proper to bleed immediately after a fracture, and if the patient be young, of a full habit, or has, at the same time received any bruise or contusion, or the ribs are broken, bleeding is then absolutely necessary.

If any of the large bones which support the body are broken, the patient must keep his bed for several weeks, but it is not necessary that he should lie all that time on his back. After the second week he may be gently raised up and supported for a while by a chair and pillow. But in raising him up, and laying him down, he must make no exertion himself, otherwise the action of the muscles may pull the bones out of place. The patient at the same time must be kept dry and clean; by neglecting this he often so galled and excoriated as to be obliged to keep changing his position. The best situation is to keep the limb a little bent. This is the posture into which every animal puts itself when it goes to rest, and in which fewest muscles are upon the stretch. It is easily done by putting the patient on his side, or by making the bed so as to favor this position of the limb.

When a limb is broken, it is generally known by the distortion or deformity of the part, or if it be a leg, by his not being able to stand on it. But when a fracture is not manifest from the appearance, pass the fingers along the suspected bone, and whenever any unusual pain occurs, or any unnatural irregularity appears, endeavor to make one part of the bone rub against the other, and you will feel a grating, or *crepitus*, as the surgeons term it. You will also be assisted in forming a judgment by examining the same bone of the other arm or leg, and comparing the two; and if you are still uncertain, (which can hardly be the case if the limb is broken,) no harm can arise from proceeding with it in the same manner as if you were *certain* that the limb *was* broken.

FRACTURE OF THE BONE OF THE NOSE.

Any smooth article that will pass into the nostril should be immediately introduced with one hand, to raise the depressed

portions to their proper level, while the other is employed on the outside in moulding them into the natural shape. If pain and inflammation come on, bleed, take physic, and live on a low diet.

FRACTURE OF THE LOWER JAW BONE.

THIS may be known by pressing with one hand on the front teeth of that side where the fracture is supposed to be, while at the same time, the other hand is applied to the basis of the bone near the angle: then by making alternate pressure with each hand, the bone will be felt to move, or even a crepitus or grating may be distinguished. But when the bones are displaced, the fracture is known by the external appearance—the mouth is open and drawn to one side, and the shape of the jaw distorted.

It is to be remedied by keeping the lower jaw firmly pressed against the upper one, by means of a bandage passed under the chin and over the head. If it is broken near the angle, or that part nearest the ear, place a cushion or roll of linen in the hollow behind it, over which the bandage must pass, so as to make it push that part of the bone forward. The parts are to be confined in this way for twenty days, during which time, all the nourishment that is taken, should be sucked between the teeth. If in consequence of the blow, a tooth is loosened, do not meddle with it, for if let alone, it will grow fast again.

FRACTURE OF THE CLAVICLE, OR COLLAR BONE.

THIS accident is a very common occurrence, and is known at once by pressing the finger along it, and by the swelling, &c. To reduce it, seat the patient in a chair, bring the shirt down off the shoulders, and place a stout compress of linen made in the shape of a wedge, under his arm, the thick end of which should press against the arm-pit. His arm, bent to a right angle at the elbow, is now to be brought down to his side, and secured in that position by a long bandage, which passes over the arm of the affected side and round the body. The fore arm is to be supported across the breast by a sling. It takes from four to five weeks for the bones to re-unite.

FRACTURE OF THE ARM.

SEAT the patient on a chair, or the side of a bed, let one assistant hold the sound arm, while another grasps the wrist of the broken one and steadily extends it in an opposite direction, bending the fore arm a little to serve as a lever. You can now place the bones in their proper situation. Two splints of shingle or stout pasteboard, long enough to reach from below the shoulder to near the elbow, must then be well covered with tow or cotton, and laid along each side of the arm, and kept in that position by a bandage. The fore arm is to be supported in a sling. Two smaller splints may for better security be laid between the first ones, that, is one on top, and the other underneath the arm, to be secured by the bandage in the same way as the others.

FRACTURE OF THE FORE ARM.

IT is to be reduced precisely in the same way as the preceding, excepting the mode of keeping the upper portion of it steady, which is done by grasping the arm above the elbow. When the splints and bandage are applied, support it in a sling.

FRACTURES OF THE WRIST.

THIS accident seldom takes place ; but when it does, the injury is generally so great as to require amputation. If the hand can be saved, lay it on a splint well covered with tow, extending beyond the fingers ; place another splint opposite to it, lined with the same soft material, and secure them by a bandage. Carry the hand in a sling. When the bones of the hand are broken, fill the palm with soft compresses or tow, and then lay a splint on it, long enough to extend from the elbow to beyond the ends of the fingers, to be secured by a bandage as usual. When a finger is broken, extend the end of it until it becomes straight, place the fractured portion in its place, and then apply two small pasteboard splints, one below and the other above, to be secured by a narrow bandage. The top splint should extend from the end of the finger over the back of the hand.

FRACTURE OF THE RIBS.

WHEN after a fall or blow, the patient complains of a prick-

ing in his side, we may suspect a rib is broken.' It is ascertained by placing the tips of two or three fingers on the spot where the pain is, and desiring the patient to cough, when the grating sensation will be felt. All that can be done is to pass a broad bandage round the chest, so tight as to prevent the motion of the ribs in breathing, and to observe a low diet.

FRACTURE OF THE THIGH BONE.

LET the bones be brought to their place by extension in the common way; and then, as the patient lies on his back, the whole limb should be turned outwards so as to rest on the great trochanter of the thigh, and the patient's whole body should be inclined to the same side; the leg and foot, lying on their outside, and supported by smooth pillows, should be rather higher than the thigh. One very broad splint, hollowed out and well covered with wool or tow, should be placed under the thigh on the outside to extend to the knee or below it; another splint somewhat shorter, should extend from the groin below the knee on the inside, or rather in this posture on the upper side; the bandage should be of the eighteen-tail kind, and when the bone is set, and the thigh well placed on the pillow, it should not be moved again until the bones are united. The eighteen-tail bandage is made and applied in the following manner:—A strip of cloth as long as the splint and as wide as the hand, is the first part of it; then sew other strips or tails, across it like cross pieces, and the bandage is made. When the splints are to be applied, the bandage must be ready and laid under the limb with the long strip in the direction of the splints; then as the splints are applied bring up the tails of the bandage from each side, lapping the ends over each other until you come to the last which may be sewed or fastened with a pin. Two other splints are sometimes used; one above, and one below the limb.

The ingenious Dr. Hartshorne has invented an apparatus for reducing a fractured thigh, which leaves a straight limb without lameness or deformity; and any man of common sense can apply it as well as a surgeon. It consists of two splints made of half or three quarter inch well seasoned stuff, eight or ten inches wide, one of which should reach from a little above the hip, to fifteen or sixteen inches beyond the foot, while the other extends the same length from the groin. The upper end of the inner splint is hollowed out and

well padded or stuffed. Their lower ends are held together by a cross piece, having two tenons, which enter two vertical mortices, one in each splint, and secured there by pins. In the centre of this cross piece (which should be very solid) is a female screw. Immediately above the vertical mortices, are two horizontal ones of considerable length, in which slide the tenons of a second cross piece, to the upper side of which is fastened a foot block, shaped like the sole of a shoe, while in the other is a round hole for the reception of the head of the male screw, which passes through the female one just noticed. On the top of this cross piece, to which the foot block is attached, are two pins, which fall into grooves at the head of the screw, thereby firmly connecting them. The foot block as before observed, is shaped like the sole of a shoe. Near the toe is a slit, through which passes a strap and buckle. Near the heel are a couple of straps, with two rings, arranged precisely like those of a skate, of which, in fact, the whole foot block is an exact resemblance. A long male screw, of wood or other material, completes the apparatus.

To apply it, put a slipper on the foot of the broken limb, and lay the apparatus over the leg. By turning the screw, the foot block will be forced up to the foot in the slipper, which is to be firmly strapped to it, as boys fasten their skates. By turning the screw the contrary way, the padded extremity of the inner splint presses against the groin, and the foot is gradually drawn down, until the broken limb becomes of its natural length and appearance, when any projection or little inequality that may remain, can be felt and reduced by a gentle pressure of the hand.

The great advantages of this apparatus are the ease with which it is applied, and the certainty with which it acts. The foot once secured to the block, in a way that every school boy understands, nothing more is required than to turn the screw until the broken limb is found to be of the same length as the sound one. Fractured thighs and legs generally re-unite in six or eight weeks; in old men, however, they require three or four months. In a fracture of the thigh or leg, the patient should always, if possible, be laid on a mattress or hard bed, supported by boards instead of the sacking, which, from its elasticity and the yielding of the cords, is apt to derange the position of the body.

FRACTURE OF THE KNEE-PAN, OR PATELLA.

THIS accident is easily ascertained by examination. It may be broken in any direction, but is more generally fractured across, or transversely. It is reduced by bringing the fragments together, and keeping them in that position by a long bandage passed carefully round the leg, from the ankle to the knee, then pressing the upper fragment down so as to meet its fellow, (the leg being extended) and placing a thick compress of linen about it, over which the bandage is to be continued.

The extended limb is now to be laid on a broad splint, extending from the buttock to the head, thickly covered with tow to fill up the inequalities of the leg. For additional security, two strips of muslin may be nailed to the middle of the splint, and one on each side, and passed about the joint, the one below, the other above, so as to form a figure eight. In twenty or thirty days the limb should be moved a little to prevent stiffness.

If the fracture is through its length, bring the points together, place a compress on each side, and keep them together with a bandage, leaving the limb extended, and at rest.

FRACTURE OF THE LEG.

FROM the thinness of the parts covering the principal bone of the leg, it is easy to ascertain if it is broken obliquely. If, however, the fracture be directly across, no displacement will occur, but the pain, swelling, and the grating sensation, will sufficiently decide the nature of the accident.

If the fracture is oblique, let two assistants extend the limb, while the broken parts are placed by the hand in their natural position. Two splints, that reach from a little above the knee to nine or ten inches below the foot, having near the upper end of each four holes, and a vertical mortice near the lower end, into which is fitted a cross piece, are now to be applied as follows. Lay two pieces of tape about a foot long, on each side of the leg, just below the knee joint, and secure them there by several turns of a bandage; pass a silk handkerchief round the ankle, cross it on the instep, and tie it under the sole of the foot. The two splints are now placed one on each side of the leg, the four ends of the pieces of tape passed through the four holes and firmly tied, and the cross pieces placed in the mortice. By tying the ends of

the handkerchief to this cross piece, the business is finished. If the fracture is across, and no displacement exists, apply two splints of stout pasteboard, reaching from the heel to the knee, and well covered with tow, one on each side of the leg, securing them by a bandage passing round the limb, and outside the splints.

In cases of oblique fractures of the leg close to the knee, Hartshorn's apparatus for fractured thighs should be applied, as already directed.

FRACTURES OF THE BONES OF THE FOOT.

THE bones of the feet are sometimes, though rarely, broken. It is known by a crack at the moment of the accident, a difficulty in standing, by the swelling, and by the grating noise on moving the foot. To reduce it, take a long bandage, lay the end of it on the top of the foot, carry it over the toes under the sole, and then by several turns secure it in that position. The foot being extended as much as possible carry the bandage along the back of the leg above the knee, where it is to be secured by several turns, and then brought down on the front of the leg, to which it is secured by circular turns. In this way the broken pieces will be kept in contact, and in the course of a month or six weeks will be united.

AMPUTATION.

It is altogether a mistaken notion that no man can amputate, unless he has gone through a regular course of surgical studies. Every one knows perfectly well that accidents happen frequently in places and under circumstances where it is not possible to get a surgeon, and in which immediate operation is the only means of saving life.

Any man of common dexterity and firmness of nerve, can cut off a limb, as safely as a surgeon.

If the proper amputating instruments are not to be had ; Take the handkerchief and stick as a substitute for the tourniquet ; a carving or other large knife, with a smooth, sharp, and straight blade, in place of the amputating knife ; a pen-knife for the scalpel and catling knife, a carpenter's tenon saw, for the bone saw ; a slip of leather or linen (retractor) three inches wide and two or three feet long, slit up its middle half the length, a dozen ligatures about six or nine in-

ches long, each made of three or four threads of silk or fine twine, and waxed ; a hook with sharp point as a substitute for the tenaculum ; a pair of slender pincers, for the forceps ; several narrow strips of sticking plaster, about half an inch wide and eight or ten inches long ; dry lint ; a piece of linen large enough to cover the end of the stump, spread with simple ointment or lard ; a bandage of the width of your hand three or four yards long ; sponges, and warm water, and a fixed determination to do what you under take.

AMPUTATION OF THE ARM.

THE patient may take sixty or eighty drops of laudanum if he has a mind to. He must then be seated on a firm table or chest, of a convenient height so that some one can support him by clasping him round the body. Tie the handkerchief loosely round the arm as high up as can be, then pass a short stick beneath the knot, and twist it after the pulse is no longer to be felt at the wrist. Your instruments should be laid regularly on a table, within reach of your hand.

Let one support the lower end of the arm, and at the same time another draw up the skin. Now with the large knife make one cut straight around the limb through the skin and fat only. Then with the small knife separate as much of the skin from the flesh above the cut as will form a flap to cover the face of the stump, turn this back, and let it be held by an assistant. With the large knife make a second incision round the arm and down to the bone, as close as you can to the skin you have turned back, taking care not to cut it. Now pass the arm through the slit piece of linen, (retractor,) and let the edges pass into the last incision down to the bone, and draw the ends so as to keep the flesh up from the teeth of the saw ; the bone must now be sawed through, as near the retractor as can be conveniently.

With the hooks, or pincers you must now seize and tie up every vessel that bleeds, the larger first and the smaller next, until they are all secured. When this is done relax the stick a little, if a vessel starts secure it as before. The wound must now be gently cleansed with a sponge and warm water, and the stick relaxed. If no vessel bleeds, break off any splinters of bone that may be on the end of the bone, bring the flap over the end of the stump, draw its edges together, and secure them with the straps of adhesive plaster, leaving the

ligatures hanging out at the angles, lay the linen spread with ointment or lard over these, and over the whole a pledget of lint, and secure all by the bandage, put the patient to bed and lay the stump on a pillow.

The handkerchief and stick must be left loose around the limb, so if any bleeding happens, the attendant may tighten it in an instant; when it must be undone, the bleeding vessel secured, and then done up as before.

Sometimes the ends of the arteries cannot be got hold of, or they are diseased and give away under the hook or pincers; sometimes they are turned to bone. In all of these cases pass a needle with a ligature round the artery, so that when tied it will include a portion of flesh, along with the artery. If the weather is warm the bandage may be taken off in three days, if cool, not sooner than five or six; they must be soaked well with warm water and taken off with the greatest care. Clean dressings must then be applied, and changed every two days. The ligatures come away in twelve or fourteen days, and if every thing goes on well, it will be healed in three or four weeks.

The thigh is amputated in the same manner, and in either case if the operator chooses, he may so direct the knife as to cut obliquely upwards, that when the limb is removed the wound will be hollowing upwards; like a funnel. Operating as low down as the case will admit.

AMPUTATION BELOW THE KNEE.

In the leg the operation should be made three or four inches, at least, below the knee pan.

The tourniquet, or the handkerchief and stick must be applied two thirds of the way down the thigh. The leg should be properly secured, and the integuments drawn up, while the surgeon with a quick stroke of the knife must divide the skin completely around the limb, cutting in such a direction that the knife falls straight across the fore part of the leg, but rather below the calf of the leg, as the flap to cover the stump must chiefly be taken from the calf of the leg.

The next step is to detach and turn back what skin appears necessary to cover the stump, this the assistant must hold back while the operator divides the muscle down to the bone. The following is to pass a sharp knife between the two bones, to divide the ligament, &c., between them.

Every part being divided except the bones, a piece of linen slit in three strips at one end are to be passed, the middle tail between the bones, the other two, one on each side of the bones, and all drawn gently upwards so as to hold the flesh out of the way of the saw. The bones must then be sawed through, being careful to have the limb held steady, and not to sliver the ends of the bone.

The vessels must be secured, (they are seldom more than three here,) and the integuments brought over the bone, and the dressings conducted as directed in amputation of the arm.

The amputation of the fore arm is performed in a similar manner, except this, that the incision must go straight round the arm, for all the bones of the arm are sufficiently surrounded with flesh to form the necessary flaps. The compression of the artery must be made above the elbow joint.

AMPUTATION OF THE FINGERS AND TOES.

A SMALL semilunar incision must be made on the back of the finger or toe to be removed. The wound must extend across the lower part of the joint; the lower or most convex part must be half an inch below the joint, and with a gentle curve towards each point or end of the incision terminating at the joint: thus). Next the skin in front of the joint is to be divided and the two ends of this incision must meet those of that.

Now bend the joint, and open the capsular ligament, and then divide the ligaments on the sides of the joint; the finger may now be dislocated, and any parts cut that remain undivided. If the arteries bleed much they must be tied. The flap must be brought over the end of the stump, and straps of adhesive plaster, and the other dressings recommended in amputation of the arm must be applied here.

HARE LIP.

THIS is generally a malformation from the time of birth, but in a few instances it is the consequence of wounds. If there is two fisures the intervening substance must be preserved. The operation may be performed at any age, it is exceeding simple and may be performed by almost any one, who will follow the directions hereafter given.

The object is to make the wound smooth, and the edges even as possible, that they may come together forming a nar-

row straight line, in order that they may unite by adhesion. Scissors are not so good as the knife to cut the margins, as they bruise the fibres which they divide.

The best plan is to place any thing flat, as a spatula, or a piece of wood or pasteboard, underneath the lip, and then to cut away the edges of the fissure with a sharp knife, or to hold it with a pair of forceps, in such a manner that as much as is to be removed may be situated at one side of the forceps, so that it can be cut away with one sweep of the knife.

This is to be done to both sides and the incisions must meet at an angle above, thus Λ .

The lips of the wound must now be brought in complete contact, and two silver pins with steel points are introduced through the edges of the wound; and a piece of thread is wound round the ends of the pins, separately, from one side to the other, crossing on the top in form of the figure 8, this keeps the edges of the wound in even opposition. The pins should never be introduced deeper than two thirds through the substance of the lip. The pins may usually be removed in about six days, the part being afterward supported by adhesive plaster.

CATARACT.

A CATARACT is an opacity of the crystalline lens, by which the rays of light are prevented from passing to the *retina*.

This speck on, or opacity of the lens originates and augments gradually, for the most part. Sometimes however it is sudden in its appearance, and rapid in its progress.

The first observable effect is a mist before the eyes, gradually increasing in density so as to render things quite invisible. The opacity when viewed externally always seems the greatest in the middle. But the opacity is seldom or never so great as to exclude entirely the rays of light.

When the lens is harder than in the natural state it is called a *hard* or *firm cataract*, when the substance of the lens is converted into a whitish fluid it is denominated a *milky* or *fluid cataract*, when it is of about the consistence of jelly it is termed a *soft* or *caseous cataract*. When an opacity of the capsule of the lens takes place after an operation, it is called the *secondary membranous cataract*.

Causes. Exposures to strong fires, external violence, and inflammations of the eye produce it; but it more commonly

arises spontaneously, though some children are born with this kind of blindness, in this case it is termed *congenital cataract*.

Treatment. Internal medicines have little or no effect in this complaint. The application of one or two drops of ether to the eye has had a good effect in some instances, but they are generally cured by removing the opaque lens, from the axis of vision by means of a needle, called *couching*; or by *extracting* the lens from the eye, through a semicircular incision made at the lower part of the *cornea*.

OPERATION OF COUCHING.

If a curved needle is used, it is to be held with the convexity of its curvature forward, its point backward, and its handle parallel to the patient's temple. The patient must turn the eye towards the nose, and the surgeon must keep it steady in this position with the thumb and fingers of the left hand, being careful not to make much pressure on the eye, he is then to introduce the needle boldly through the opaque *sclerótica*, not less than two lines back of the transparent *cornea* in order to avoid the ciliary process. The extremity of the instrument is now to be guided over the opaque lens, which is now to be pressed a little downward with the convex flat surface of the end of the needle, by which room is made to pass the instrument in front of the diseased lens and the membrane that incloses it.

Care must be taken to have a mark on the handle of the needle, so as to know which way the point is inclined, and it must be kept turned back from the *iris*. The needle will now be plainly seen through the pupil, and its point must be pushed as far as the inner edge of the lens, then the operator is to incline the handle of the instrument towards himself, by which the point will be directed through the capsule into the substance of the lens, and on moving the needle downward and backward the membrane will be torn, and conveyed with the lens deeply into the vitreous humor, where they are soon taken away by the absorbents.

When the cataract is *fluid* or *milky*, as soon as the capsule is pierced, it flows out, so that the *iris* and instrument are concealed from view, the object now is to lacerate the capsule as much as possible. The whole will be very soon

absorbed after the operation and the eye left in a transparent state.

If the cataract is soft, not milky, and lighter than the vitreous humor, so that it rises again after depression, the operator must be content, with tearing it as much as possible, leaving the rest to absorption.

If it is a *secondary membranous* one, the point of the needle must be turned carefully towards the iris, and the membrane broken as much as is practicable, it will be taken away by the absorbent vessels. In all cases where the lens cannot be depressed below the axis of vision, if the operator choose, he may push as much as is convenient, through the pupil into the anterior chamber of the eye, as it appears to be sooner absorbed here than in the posterior.

A straight needle is preferred by some operators of the first respectability.

EXTRACTION OF THE CATARACT.

THE knife should be straight, sharp throughout its whole length upon the lower edge, and the upper edge thin, but only sharp for about one eighth of an inch from the point. The knife should be so constructed as to increase gradually in thickness from the point to the handle by which means the aqueous humor will be prevented from escaping before the knife is cut out downwards, for if the aqueous humor escapes prematurely the iris falls forward beneath the edge of the knife.

The patient is to be seated in a low chair, and not in too strong a light as this will make the pupil contract too much. The sound eye must be covered; and this must be observed in couching. The upper eye lid is to be raised with the fore finger, and pressed against the upper edge of the orbit, the operator should be seated, resting his foot on a stool, in order that his knee may be raised high enough to support the elbow. The knife is to be held like a writing pen, and the little finger of the hand is to rest steadily on the out side of the cheek.

When the eye is still, and so turned towards the outer angle that the inner and inferior part of the *cornea* can be distinctly seen, the operator is to plunge the knife into the upper and outer part of this tunic, at the distance of a quarter of a line from the sclerotica, and a little above the transverse diameter of the *cornea*.

If there is pressure made to keep the eye steady, it must

be during the above part of the operation, and the gentlest possible that will keep it fixed. The broad part of the blade is between the cornea and iris and its lower edge below the pupil, so that the iris is not in much danger of being wounded, all pressure must now be taken off of the eye, but the lids must be kept open. The blade is now to be pressed slowly downward till it has cut its way out, and divided a little more than half of the circle of the *cornea*.

The next thing is to divide the anterior layer of the capsule of the crystalline lens in order to allow the lens itself to escape. The division of the capsule may be made by the knife, or a needle made for the purpose, by passing it through the pupil. The exit of the lens generally follows the division of its capsule very readily, on very gentle pressure being made on the eye.

When the capsule itself is deprived of its natural transparency, a very small pair of forceps is used for extracting it.

RANULA.

THIS is an inflammatory or indolent tumor, under the tongue. These tumors are of various sizes and degrees of consistence, in some instances the contents resemble the saliva, in others, the glairy matter found in the cells of swelled joints, sometimes a fatty matter is found in them, and very frequently the ducts of the glands (the seat of this complaint) are filled with a stony matter. They are caused by cold, inflammation, violent fits of the tooth-ache, &c.

These tumors impede the action of the tongue, render mastification difficult, and the patient in speaking, croaks like a frog.

Treatment, consists in laying the sack completely open and pressing out the matter, and if it is of a bony consistence, every particle must be removed by means of a small pair of forceps. If the contents are found upon opening to be a fatty consistence, it must be drawn forward with a hook and the whole sack dissected out. In either case if there is much bleeding, a dossil of lint pressed into the wound will generally stop it; but if it does not, the patient must wash the mouth frequently with brandy, or cold water, reapplying the lint immediately after using the brandy or water.

TAPPING FOR THE DROPSY, OR PARACENTESIS ABDOMINIS.

THIS operation is performed for the purpose of discharging the fluid collected in the belly, in dropsical cases.

The proper instrument is a trocar with a canula (a tube) through which the fluid can readily escape. But a common thumb lancet will answer every purpose to make the puncture with, and a catheter immediately introduced into the wound will permit the water to pass off, and answer in place of the canula.

The instrument must be introduced about three inches below the navel, inclining to neither side. As soon as the instrument meets with no further resistance, it is not to be pushed more deeply, but withdrawn, and the water allowed to escape through the canula, or if a lancet has been used, the catheter must be introduced.

This is the simplest of surgical operations, if performed in the situation above directed ; there being nothing more than a very thin tendinous part to penetrate.

In consequence of the sudden removal of the pressure of the fluid on the internal parts, patients are very apt to swoon, and become affected with unpleasant and dangerous symptoms, unless the abdomen is compressed by a bandage passed round it, which must be gradually tightened as the water is discharged, after which a roller, or bandage over a flannel compress must be applied in rather a tight manner. This operation may prolong life and suffering, but I doubt its ever having effected a cure.

THE SAME OPERATION IN THE THORAX. OR CHEST.

THIS is performed for the purpose of giving vent to air, water, matter, or blood, by the pressure of which the functions of the lungs are dangerously obstructed. When the cavity of the chest is filled with water, the disease is termed *hydrops pectoris*, when with matter or pus, *empyema*. It is not an easy matter to determine the necessity of this operation, but if performed by a skillful hand it is not dangerous, and if you have experienced difficulty of breathing, the undulation of fluid upon moving in bed, the ribs of the affected side becoming more arched than natural, the face bloated, sometimes the side and arm also, especially if rigors follow a

high degree of inflammation of the lungs or pleura, and these rigours are followed by the above described symptoms, and an experienced surgeon deems it proper, let him cut a wound about three inches in length through, the integuments being first drawn to one side, then cautiously through the flesh, and lastly a small puncture through the skin that lines the inside of the chest. Making him be careful to pass the knife near the upper edge of the lowest of the ribs betwixt which he operates, he may avoid wounding the artery that lies in a groove on the lower side of the upper (and each) rib. After the matter has escaped the integuments must be permitted to come back to their natural position by which the orifice through the flesh into the thorax will be completely closed by the integuments; as the drawing of the integuments to one side in the first instance, will cause the holes to come in disopposition when the integuments resume their natural situation.

TONGUE TIED.

IN infancy, the frænum or string of the tongue may sometimes extend too far forward, to the very extreme point of the tongue, or it may not be of sufficient length to allow the tongue to be raised from the bottom of the mouth. In the natural state, there is about a quarter of an inch from the point backward, which remains free, and unconnected with the frænum. When this part is completely tied down so that the child cannot suck, the frænum may be divided; but in no other case is it ever necessary. The prevalent notion that every new-born child must undergo this operation, is no less ridiculous than dangerous; for it is very important that the lingual arteries, and particularly, two veins, which are known by their blue color, should be avoided. When these are wounded, they bleed so freely that infants have frequently died from loss of blood. When the operation becomes actually necessary, the best instrument for performing it is a pair of sharp scissors with blunt points. But if a child can suck, there is no danger but that it will talk fast enough at a proper age.

DISEASE OF THE TONGUE.

ULCERS on the tongue are sometimes produced by the sharp rough edge of a tooth. File off the projection or roughness if the tooth be sound, and if carious, extract it.

Hardened swellings, or scirrhus tubercles on the tongue, ending sometimes in malignant cancerous ulcers, may be treated like other cancerous affections; a gentle course of mercury will sometimes remove them; but cutting them out with the knife when they first appear, is the best way of treating them. Other kinds of ulcers on the tongue may be cured by other means.

Some ulcers which are painful and malignant, and surrounded by inflammatory hardness, may be cured by taking opium, and gradually increasing the dose. Sometimes they are cured by the long continued use of tartar emetic in small doses, gradually increased. The repeated application of leeches under the tongue has also effected a cure. Unhealthy ulcers on the tongue and tonsils may be caused by violent salivations. When that is the case, the mercury must be discontinued, and the mouth frequently washed with a solution of alum, or a decoction of crane's bill root in water, and small doses of sulphur and cream of tartar, should be taken internally as often as two or three times a week.

DISEASES OF THE TONSILS AND UVULA.

THE tonsils are liable to inflame, and where the swelling thus produced occasions difficult breathing and swallowing, it should be attended to immediately by scarifying the tonsils with a lancet, and promoting the bleeding by the use of warm gargles. When the tonsil becomes enlarged without being inflamed, a portion of it may be safely cut off with a pair of scissors constructed with short blades and long handles.

When the uvula becomes relaxed and unnaturally lengthened, so as to interrupt swallowing and occasion uneasiness in the throat, the superfluous part of it should be removed. A slight relaxation, however, may be generally cured by astringent gargles, as infusion of roses, alum, tincture of bark, &c.

WOUNDS OF THE NECK.

WHEN nothing is injured but the skin and muscles, a wound of the neck requires no different treatment from a similar wound in any other situation; but it sometimes happens that those who attempt to commit suicide are desperate enough to cut deeper, by which the external maxillary, lingual, and thyroideal arteries, are generally wounded; but it

is common for suicides to make their incision too high to endanger the main trunk of the corotid artery. The only way of saving life is to take up the wounded artery and tie it on each side of the wound. A wound of the corotid artery is apt to prove fatal before assistance can be obtained, and the only alternative is instantly to tie the artery both below and above the wound. But in passing the ligature around the artery, remember that the eighth pair of nerves lies close to it, in the same sheath of cellular substance. If you include this nerve in the ligature and tie it with the artery, instant death is the consequence. It lies on the outside of the artery, between it and the jugular vein. Mr. Abernethy's method of tying the artery, is to make an incision on that side of it which is next to the trochea, where no important parts can be injured, and where the finger can be introduced under the artery so as to compress it; he there passes an aneurism needle threaded with a ligature behind the artery, and brings up the eye part as close as possible to that edge of the artery which is next to the internal jugular vein. In this way there is no risk of wounding the jugular vein, nor of tying the eighth pair of nerves.

WOUNDS OF THE TRACHEA OR WIND PIPE.

WHEN the upper part of the trachea is wounded and only the fore part of it is cut through, it will generally do well by proper treatment, notwithstanding its dangerous appearance.

By bringing the patient's chin downward and forward to the sternum or breast bone, and keeping the head constantly in this posture by the support of pillows, bandages, or any other means, the edges of the wound in the trachea may be placed in contact and kept there until they have grown together. Stitches, in this case are not necessary, and as the irritation from them would aggravate the cough and inflame the wound, they are not to be used.

When the trachea is completely cut off, and other parts are not injured so as to render it immediately fatal, the bleeding vessels are first to be tied, and the two ends of the trachea are then to be brought into contact: and in order to keep them so, a suture now becomes necessary; but the needle should not be introduced through the lining of the trochea, one stitch is enough, and the chin must then be kept forward as before directed, until the two ends of the trachea have

grown together. In order to guard against inflammation of the part, antiphlogistic measure are also to be adopted.

WOUNDS OF THE ŒSOPHAGUS.

THE Œsophagus is the tube that carries the food into the stomach, and it is situated behind the trachea, it is evident that it cannot be injured with a cutting instrument without cutting off the whole of the trachea. A total division of the Œsophagus must always be fatal from the injury of so many nerves and blood vessels. It is stated, however, by the French surgeons, that cases have been cured in which half, or even two-thirds of the tube were cut off. Punctured wounds of the Œsophagus from stabs, may possibly not injure the trachea, arteries, and nerves, in which case they will not be so dangerous, and adhesive plaster to the external wound, injecting nourishment and medicine into the stomach through a tube introduced down the passage, is all that can be done.

FOREIGN BODIES IN THE ŒSOPHAGUS.

FOREIGN bodies are more apt to lodge in the upper or lower part of the throat than in the middle of it. When they are low down or when they fill up the whole cavity, it is generally necessary to force them into the stomach; but if not, the substance may be extracted with a pair of curved forceps, or with a piece of wire doubled and twisted in such a manner that the bent end forms a noose of the shape of a hook. Or it may be extracted with a probang. A probang is made by fastening a bunch of thread, doubled so as to make an immense number of nooses, to the end of a long piece of flexible whale bone. By introducing this into the throat, little bodies may become entangled in the nooses and extracted when other means fail. Or a piece of rag or sponge may be fastened to the whalebone or stick, and introduced below the substance as before. When foreign bodies in the Œsophagus can neither be extracted nor pushed downwards, the patient is either suffocated by compression of the trachea, or inflammation, and sloughing takes place producing death, or after exciting suppuration they become loose and are either thrown up or carried into the stomach. Sometimes foreign bodies, such as needles, &c., after making their way through the Œsophagus, travel a great way about the body,

and finally make their appearance at the surface, behind the ears, the shoulders, feet, &c.

The operation of cutting open the œsophagus (which is called œsophagotomy,) was successfully performed on a cow by Dr. Blood of Worcester, Mass. from which we infer that it may safely be done on human subjects when the probang cannot remove the obstruction. Great improvements in surgery are almost constantly taking place; and operations which were once considered beyond the power of man, are now common occurrences.

TRACHEOTOMY.

THIS is the operation of cutting into the trachea or wind-pipe, for the purpose of introducing air to inflate the lungs in cases of suffocation or drowning; or in order to make an artificial opening through which breathing may be carried on when the natural passage for the air through the mouth and nose is obstructed so as to endanger suffocation; or in order to extract foreign bodies from the trachea. When a foreign substance has fallen into the windpipe, and the person is in danger of suffocation, the trachea must be cut open, and the substance extracted, in order to save life. The operation is quite simple and free from danger. The integuments are to be divided with a scalpel or sharp knife, beginning the wound just below the inferior lobes of the thyroid gland, and ending it at a little distance above the sternum or breast bone. The sterno-thyroidei muscles are then to be pushed a little towards the side of the neck, and a longitudinal (lengthwise) wound of the necessary size is then to be made in the front of the trachea. The knife must not be carried either to the right or left hand, or in order to avoid all risk of injuring the large blood vessels.

WRY NECK.

IN this affection the head is drawn towards one of the shoulders, and the face is generally turned towards the opposite side. The head finally becomes immoveable and incapable of being placed in its proper position. It is commonly owing to a defect or want of action in the muscles that move the head. It may be occasioned by burns, &c. or attended with a hardness and painful contraction of the muscles on one side of the neck. Sometimes a wry neck is caused by para-

lysis or palsy of the muscles on one side of the neck. When this is the case, electricity will be likely to cure it. When the wry neck is caused by a contraction of the sterno-cleido-mastoides muscle, the operation of dividing the contracted muscular fibres may be performed. In other cases, camphorated mercurial frictions till salivation takes place; electricity; stimulating embrocations; the shower bath; blisters, issues, &c., and opium taken internally, are the common remedies, which should be assisted by mechanical contrivances for gradually bringing the head into a straight position.

RETENTION OF URINE.

THIS may be caused by weakness or paralysis of the bladder; by a spasmodic closure of the neck of the bladder; or by some obstruction in the passage.

When caused by paralysis or palsy of the bladder, the passage for the urine is open, but the bladder has lost its natural power of contracting, so as to throw off the urine. In this case, fifteen or twenty drops of the tincture of Spanish flies should be taken once a day in order to stimulate the bladder to perform its office; a blister may be applied to the sacrum, or perineum, and cold applications to the hypogastric region are proper. If these means fail, use the catheter in a standing posture, and assist the action of the bladder by gentle pressure externally.

Retention of urine from inflammation and spasmodic contraction of the neck of the bladder, or urethra, may be caused by strictures, violent gonorrhœas, stone in the bladder, very bad piles, fistula in ano, the absorption of cantharides (Spanish flies) from blisters, or by taking too large doses of the tincture of cantharides. The most powerful means for relieving it are copious bleedings, leeches to the perineum, or vicinity of the os pubis, opium by the mouth, and in clysters, warm bath, warm fomentations, a solution of salts of nitre in cold water, taken in small doses, and frequently repeated, or a decoction of pumpkin seeds, may be taken in larger doses. When these have been tried without success, the urine must be drawn off with the catheter without any further delay. This may be done either in a standing, or lying down posture. The most important caution is never to force forward the instrument when it is stopped by any abstacle, but withdraw the catheter a little, and then push it gently onward in

a different position, or if this does not answer, the fore finger of the left hand may be introduced into the rectum for the purpose of supporting the membranous part of the urethra, and guiding the extremity of the catheter. When no kind of catheter can be introduced, not even a small one made of india rubber, and all other means fail, the operation of puncturing the bladder must then be performed, and should not be delayed over forty-eight hours from the first. The bladder is generally punctured either above the os pubis, or through the rectum.

LITHOMY, OR OPERATION FOR THE STONE.

WHEN a stone in the bladder is large, or irregular in its figure, it occasions various complaints; an uneasiness is felt at the extremity of the urinary passage, a sense of weight in the perineum, especially if the patient rides on horse back or sets much upon a stool or hard chair, there is frequent inclination to make water and go to stool, the evacuation is attended with pain, the water contains a good deal of mucous, and sometimes blood, and earthy particles, when the patient has taken exercise, and there is frequently numbness in the thighs.

There is a disease of the prostate gland (this gland is so situated, in the perineum, that it is generally set upon when riding on horse back, or upon leaning forward in a chair,) attended with symptoms analagous to the above, but with this difference that the motion of a horse or coach does not increase the pain of the diseased gland, while it does to an intolerable degree in cases of stone.

But the surgeon never forms a decisive opinion in this case until he has introduced a metallic instrument into the bladder and actually touched the stone itself. The patient must not submit to the operation because a stone has been felt in the bladder, but because it is now felt, when the operation is about to be performed.

Did people but know the little pain, and the much less danger attendant on this operation, thousands of sufferers would be restored to almost instant health, and hundreds of valuable lives would be prolonged, *by the patient placing himself on a firm table and resigning himself to the hands of the operator, and the event of the*

OPERATION.

After the patient is seated as above two garters, each about two yards long are to be doubled and placed by means of a noose around the patients wrists. The patient must now take hold of the outside of the foot with his hands in such a manner that the fingers are applied to the soles. The garter must now be carried round the ankles, the foot and hand in such a manner as to tie them securely together.

The staff, which is nothing more than a director with a groove for guiding a cutting instrument into the bladder, is now to be introduced. It should be more curved than the common catheter, that it may be plainly felt in the perineum.

The person who holds the staff must make its convexity prominent in the perineum by keeping the handle inclined towards the patients abdomen; and he must turn the groove a little toward the left side.

The wound should commence over the membranous part of the urethra, at the place where the operator means to make the first cut into the groove of the staff; and the incision is to extend about three inches downward a little to the left of perineum. This incision is to be made through the integuments, the next is to be made through the muscles (*transversales perinei*,) and membrane of the urethra, so that the groove and edges of the staff can be felt with the finger. *The operator is now to divide the urethra with the knife as far as possible along the groove of the staff towards the bladder; when this is done but little remains to be accomplished by the knife, (gorget.)*

The beak of the gorget must be accurately adapted to the groove of the staff, in which it is to slide during the remainder of the operation. The beak of the gorget being now placed in the groove of the staff, the operator is now to take hold of the handle of the staff with the left hand, while with the right he holds the gorget carefully in the groove of the staff, he must now bring forward the handle of the staff so as to elevate its extremity in the bladder, and push the gorget onward to the bladder, the utmost caution being observed to keep the back of the knife in the groove of the staff. If this done there can be no other parts cut but those designed to be.

The gorget must be withdrawn, (some withdraw the staff and leave the gorget in for a guide to other instruments,) and a proper pair of forceps introduced into the bladder, and the

stone taken hold of with the blades of the forceps. But the operator must not open the instrument as soon as it is in the bladder, he must first use the forceps as a probe to ascertain the situation of the stone, this being felt, he is to direct the instrument in such a manner as his knowledge of the situation of the stone will suggest, and opening them, is to lay hold of the stone, taking care not to break it unless it is too large to be extracted through the wound, and even then it will be better to enlarge the wound.

When the operator has taken out all the pieces he can discover with the forceps, he should introduce his finger to feel whether any fragments yet remain. If there do remain fragments, and they are small, the best plan is to inject lukewarm water into the wound with moderate force for the purpose of washing them out.

The wound is now to be brought together and dressed after the common manner of dressing incised wounds.

The inflammation must be watched, and on the least occurrence of tenderness of the abdomen, copious bleedings must be practised notwithstanding the pulse may be feeble, for this symptom attends all inflammations within the abdomen. The bowels must be opened with castor oil, leeches may be applied to the abdomen, together with the warm bath, blisters and emollient clysters.

There are several other methods of operating for the stone, each of which has, or has had its advocates. But I anticipate the day when this, the most useful of *all* surgical operations, will be performed with as little pain, and danger, as the operation of venesection is.

Were I to submit to an operation for the stone, I would direct my operator to provide an instrument so constructed that by means of a spring it would preserve the dilation of the rectum. And then with a proper knife, or trocar, introduced through a canula, he should pierce through the thin coats of the rectum and bladder, and extract the stone by means of forceps introduced through the wound thus made. I would not fear the formation of a fistulous passage through which the water would ever after pass, for a similar operation is frequently performed to empty the bladder of water, and no such inconvenience is ever the result.

And I apprehend, that by laying upon the belly for a few days by which position the natural passage of the water is favored, that the wound will be healed, and the aggregate

suffering of the operation will not be as much as attends the extraction of a tooth, and the danger nothing.

OF THE TEETH.

THERE is no subject within the scope of surgical science that so much interests the great mass of community, in the United States, as the preservation of the human teeth.

And none it is believed, that is easier to obtain a knowledge of, and which can be managed with greater ease and safety by every person, than the art of preserving the teeth.

Formation of the permanent set of teeth.

The time required for the complete formation and development of the permanent set of teeth is usually about twenty years from birth. The permanent teeth are larger and differ in figure from those which are first formed, and are twelve more in number, being sixteen in each jaw, these beginning generally with the front teeth, are succeeded by one another as the jaw advances in growth, the last one on each side appearing about the twentieth year.

The teeth are divided into four classes, viz. incisores, cuspidati, bicuspidos and molares. There are in each jaw in front, four of the first kind; one next to these, on each side, that are of the second class; two on each side, of the third class; and three on each side, of the fourth class. These permanent teeth, are at birth contained in membranous sacs; the teeth being then of a jelly-like substance, and are attached to the membranes which contain the first or temporary teeth. At the age of six or seven the permanent teeth growing from beneath, the first teeth are pushed from their sockets and cast off.

A tooth is composed of two substances, *bone*, and *enamel*. This enamel is the outer covering of that part of the tooth which is not covered by the gums; the rest of the tooth is bone. The bone of the tooth is formed from the pulp, and the enamel from the investing membrane. This membrane secretes a fluid from which a very white soft substance is deposited upon the bony part of the crown of the tooth. This at first is of a consistence not harder than chalk, but afterwards seems to undergo a process similar to crystallization. This chalky substance which forms the enamel is no longer

deposited after the tooth has protruded through the enamel. When the enamel is perfectly formed, it is hard enough to strike fire with steel. The dental arteries are those which carry blood to the teeth; they are branches of the internal maxillary artery, which arises from the internal carotid. It sends off numerous branches to the parts belonging to both jaws, and to the teeth of the upper jaw. It then gives off one branch to the lower jaw called the inferior maxillary, or dental artery. This enters the posterior (backside) maxillary foramen (hole) of the jaw bone, passes through the maxillary canal and gives off branches to the fangs of each tooth, and also supplies the substance of the bone with blood.

The fifth pair of nerves divides into three branches, which go to the eye, and the upper and lower jaw.

Branches from the *superior maxillary nerve*, (upper jaw nerve) enter the canal under the orbit, and form the *infra orbiter*. At the posterior part, small filaments of nerves, accompanied by arteries, enter the upper jaw bone by the foramina (holes) which lead to the molares, (double teeth or grinders,) and other branches go to the other teeth in the upper jaw.

The inferior maxillary nerve (lower jaw nerve) passes through the foramen ovale (oval hole) of the sphenoid bone, and is distributed to the muscles of the lower jaw; this nerve sends off a large branch to the tongue, which produces the taste, and then enters the maxillary canal of the lower jaw, passes through the bone under the alveoli and gives off branches which entering the fangs, ramify upon the membrane within the cavities of the teeth; it passes out at the anterior maxillary foramen and is spent about the chin and lip.

During the formation of the second set of teeth, the fangs of the first or temporary teeth are dissolved and taken up by the absorbent vessels.

That species of articulation by which the teeth are fixed in their sockets, is called gomphosis; that is, like a nail in a board. They are fastened there by a strong membranous covering called *periosteum*, which is extended over the fangs, and which also lines the socket. There is every reason to believe that the blood imparts nourishment to the teeth the same as it does to other bones. It is observed that the teeth of old people gradually lose that whiteness which is natural to them in the time of youth. This is owing to a loss of those blood vessels which carry blood to the teeth, in con-

sequence of a deposit of bony matter in their cavities. On the same principle, when a tooth has once been completely loosened by accident or otherwise, and remains in the socket, it will become of a darker color, on account of the loss of its nourishment from the destruction of its blood vessels.

The teeth, like other bones, are liable to inflammation, which occasions a morbid or unhealthy enlargement called exostosis. The chemical constituents of the teeth may be understood from what follows:—

One hundred grains of the enamel of human teeth, carefully rasped, and decomposed by a chemical process, have been found to consist of the following substances:

Phosphate of lime	78 grains
Carbonate of lime	6 “
Water of composition and loss	16 “
	<hr/>
	100

One hundred grains of the bone or roots of teeth consisted of

Phosphate of lime	58 grains
Carbonate of lime	4 “
Gelatine	28 “
Water of composition and loss	10 “
	<hr/>
	100

SHEDDING OF THE TEETH.

THE temporary teeth are only proportioned to the size of the mouth during childhood, and would therefore be too small and too few in number for the mature state of the body.

As the pulps of the new teeth are placed behind the temporary ones, it is evident that as they increase in size they will require an increase of room, to obtain which they must come forward so as to form a larger circle. This effort first produces a pressure against the bony partition between the temporary and permanent teeth, which causes an absorption of those parts upon which the pressure acts, and as the new teeth continue to grow longer, the fore part of the socket is taken up by the absorbents and carried out of the system. This absorbing process is what gives the fangs of the shedding teeth the appearance of being broken, though when compared with a fracture, there will be found to be an essential dif-

ference. From the appearance of the temporary teeth after the fangs are absorbed, some people are apt to imagine that they have no fangs, and that they are pushed out by the permanent teeth. Now that this is a mistaken idea, will appear plain by observing the state of the two sets of teeth. The temporary are finally fixed in their sockets, whilst the new teeth, during their growth, are contained in cavities larger than themselves, and can only make such pressure as their gradual increase will permit. Hence, if the absorption of the old teeth be retarded, or the formation of the new ones take place too quickly, the latter will take an improper direction when they come through the gums, and form partially a second row of teeth from the temporary ones still remaining. And further, if the old teeth were crowded out by the new, we should always find those teeth about to be displaced, forced out of the line of the others, which never takes place.

Children begin to shed their teeth between the sixth and seventh year. Those of the permanent teeth which appear first, are the anterior molares. Soon after the appearance of these, the two temporary central incisores of the under jaw are shed, and the permanent central incisors appear in their place, one coming a little before the other. In about two or three months, the same teeth of the upper jaw come away, and are succeeded by permanent ones.

In about three or four months more, the lateral incisores of the lower jaw are shed, and succeeded by permanent teeth of the same name. The corresponding lateral incisores of the upper jaw are the next that drop out, and the permanent ones appear shortly afterwards. In about six or eight months more, the temporary molares begin to loosen; they generally come out before the cuspidati, the long fangs of which take a much longer time to be absorbed.

The first bicuspidates take the places of the first molares, and about the time they appear, the second temporary molares and the temporary cuspidati become loose, and after being shed, are succeeded by the permanent cuspidati, and the second bicuspidates.

IRREGULARITIES OF THE TEETH.

IN shedding the teeth it is seldom the case that the fang of the temporary tooth is so much absorbed that the child can remove it himself before the permanent tooth is ready to pass

through, in consequence of which, the new tooth takes an improper direction, and generally comes through on the inside. On removing the temporary teeth to give room for the permanent ones, it is also sometimes found that, from some deficiency in the absorbing vessels, no absorption of the fangs has taken place—another cause producing irregularity of the teeth arises from the space occupied by the temporary teeth being too small for the permanent ones. In this case, the irregularity occasions great deformity in the appearance of the mouth.

The jaw of a child forms nearly the half of a circle, while that of an adult forms the half of an ellipsis, which is caused by an elongation or lengthening of the jaw, which begins to take place at about three years of age, and continues until the eighteenth or twentieth year, at which time the third molares or *dens sapientia* (teeth of wisdom) make their appearance.

It is frequently necessary that nature should be assisted in throwing out the temporary teeth; and if this be done at the proper time, the teeth will always take a regular position. But removing a tooth too early is more injurious than leaving it too long. A knowledge of the time when a tooth ought to be shed, (by referring to the regular progress in the appearance of the teeth, already described,) any improper operation of this kind will be prevented. But the temporary teeth are not always loose at the time they ought to be removed; for sometimes the new tooth passes through the gum behind them, and they remain to all appearance firm in the jaw.

DISEASES ATTENDING DENTITION OR THE CUTTING OF TEETH.

THE excitement produced by the passage of the teeth through the gums in infancy, frequently occasions the most alarming constitutional symptoms which sometimes terminate in death.

The mode in which the teeth pass through the gums is not generally rightly understood; the common opinion is, that as the teeth advance in growth, they find their way through the gums by their own mechanical pressure. But this is not true. By the natural pressure from the growth of the tooth, the investing membrane and gum, immediately over the tooth,

are not *cut through*, but absorbed. When the absorption takes place early, the child suffers no inconvenience, the teeth advance without any trouble, and are frequently discovered with surprise. But when the growth of the teeth is too rapid for the absorption of the gums, dentition is often attended with much pain and derangement of the system.

In all cases of indisposition arising from teething, the lancing of the gums ought never to be neglected. As soon as the gum is lanced, the tooth obtains an increase of room; the pressure is immediately taken off from the socket, and the cause of irritation removed. No injury to the tooth can possibly occur from the operation, and the escape of the blood is always beneficial by unloading the vessels, and thereby diminishing the inflammation. The most convenient instrument is a round edged gum lancet, but a common sharp pen-knife will answer the purpose. The incision should be made quite down to the tooth, or else the membrane may be still left stretched over it, and no other benefit will be derived from the operation than that which proceeds from the bleeding.

CARIES, OR DECAY OF THE TEETH.

It is most generally the effect of external causes.

An artery, vein and nerve enter the cavity of the tooth, by a small orifice at the extremity of the root, which nourish and give sensation to the tooth. These vessels are liable to be inflamed by all the causes that produce inflammation in other parts; especially by cold, and an imprudent use of mercury. Inflammation always swells the part, and the degree of pain is proportionate to the resistance offered to the inflamed, by the surrounding parts. Thus it is that the acute pain of toothache is produced by the swelling of the vessels and nerve, which fill the cavity, and come in contact with the solid and unelastic tooth. All external irritants induce caries of the teeth, especially the lodgement of food between them.

The caries extends toward the cavity of the tooth, till the membrane and its vessels and nerve, (vulgarly called the *marrer*,) are exposed to the action of external air, and matter, by which toothache is produced when the affection commences externally.

The greatest care should be observed when taking medicines, to keep it from the teeth, and to wash the mouth well.

During the formation of the second set of teeth the greatest attention should be paid to them, so as to keep them from pressing too much upon each other, and they must also be kept from coming in contact with any diseased tooth. Should a decayed tooth come in contact with a sound one, it must be extracted, or the decayed part filed away. The stumps of teeth should always be extracted, because they cause the other teeth to decay, occasion gum-boils, render the breath offensive, and injure the general health.

DISEASES OF THE GUMS.

THE gums, in a healthy state, are of a red color, firmly attached to the necks of the teeth, passing between them, extending upon the enamel, and possessing but little sensibility. When diseased, and from accumulations about them they become so sensible that the least pressure occasions pain.

Scurvy in the gums proceeds from unclean teeth. The disorder is marked by the gums becoming redder than usual, spongy, and bleeding from the slightest touch. If gum boils form they must be opened with a lancet as soon as the swelling, soft feeling and throbbing indicate that matter is formed, but if the tooth is loose it must be extracted, and indeed extraction of the offending tooth is the only sure remedy for these boils.

TOOTHACHE.

THIS is the effect of caries, by which, in general, a part of the crown of the tooth is removed and the nerve is exposed to the air and every species of matter taken into the mouth. All the membranes and contiguous parts become affected in the progress of the disease, sometimes terminating in suppuration, and occasionally in a loss of some part of the bone. There is such a remarkable sympathy existing between the teeth, that frequently the patient cannot determine which is the affected tooth; the pain frequently extends to the ear, and the fits are so frequent and violent that the person is unable to pursue his usual avocations.

There is another disease which is generally supposed to have its seat in the teeth; which is an affection of the nerves, called tic douloureux, which see.

Great caution must be used before extracting a tooth to ascertain the right tooth.

The teeth may be examined by striking them with the end of some instrument, or by picking the hollow part.

Wearing of the teeth is the natural effect of mastication, by which the teeth become tender, for a time, but they soon become insensible, the vessels filling the cavity with bony matter. *Fractures* of the teeth generally occur from injuries, from blows, &c. The practice must be regulated by the extent of the injury. If the fracture is confined to a point of the tooth, nothing is necessary but to remove the unequal surface with a fine file. But if the cavity of the tooth is entirely exposed, the remainder of the crown should be removed and an artificial tooth engrafted.

When a tooth is completely knocked out and not broken, nor the socket injured, it should be immediately replaced, and secured by threads around the adjoining teeth. But if the sockets are injured, entire removal is the only cure.

EFFECTS OF DISEASED TEETH.

THE teeth when affected often communicate diseases to the contiguous parts, especially to the gums immediately surrounding the tooth; *epulis*, or gum-boil arises from this cause, the inflammation extending to the vessels, the circulation becomes impeded and matter is formed within the alveolar cavity (socket.) The disease, if neglected, frequently extends deep into the jaw bone, and a part of it suppurates and exfoliation takes place.

Before exfoliation is accomplished a constant uneasiness prevails, and a continual discharge in the mouth takes place. The matter thus formed, and that which is constantly forming in carious teeth, being swelled with the saliva, produce difficulty of breathing, pain in the breast, dyspepsia, &c., and in two several instances, I have known it to produce lingering, but unavoidable death. Where these boils form, they should be opened freely as soon as matter is formed, and if they do not heal readily the tooth producing the mischief must be extracted: if exfoliation has taken place, the teeth concerned must be extracted, and the pieces of bone removed as early as is practicable.

TARTAR.

AN earthy substance held in solution by the saliva, and deposited upon the teeth. This tartar is small insects or ani-

malcula. This is very injurious to a healthy state of the mouth, or durability of the teeth. This, after accumulating about the teeth, finds way under the gums, producing diseases of them, causing absorption of the alveolar processes, by which the teeth lose support, and at length by accident a large piece of tartar is broken off, and the tooth deprived of its artificial support, becomes loose, or even drops out.

CLEANING SCALING, OR REMOVING THE TARTAR FROM THE TEETH.

THIS is generally termed scaling, and is nothing more than removing the incrustations of the tartar, by means of a proper instrument. Every particle should be removed from the inside, between the teeth, from the indentures on the grinding surfaces, and from the outside: and care must be taken not to injure the enamel or the gums. If this be observed there can no pernicious consequences result from scaling.

When tartar begins to form about the teeth the mouth should be frequently washed, especially after eating or sleeping, for the preservation of the teeth consists more in cleaning them than in all dental operations put together.

Separating the teeth especially those in front, is of the greatest utility, for every one knows that those persons, whose teeth are wide apart and kept clean, never complain of the tooth-ache. This is to be accomplished by filing, with a very fine file, the portions of teeth that are in contact.

Filling or stopping the teeth with pure gold foil, before they are too much decayed, will save thousands of teeth which would otherwise have to be extracted.

In stopping a tooth, the cavity should be cleaned of all extraneous matter, as well as every particle of the decayed portion and wiped out perfectly dry, then a piece of silver or gold foil, is to be introduced, and carefully and firmly pressed in, so as completely to fill up the cavity; the superfluous parts are then to be cut away, so as to allow the mouth to be closed without pressing upon it, the surface of the stopping is then to be polished.

EXTRACTION OF THE TEETH.

THIS is an operation frequently performed by persons wholly unacquainted with surgery, and I have known many such persons to perform the operation completely too, and any

person by attending to the following directions will be as well qualified to extract teeth, as the best surgeon in the *union* is.

Select your instrument with a claw proportioned to the size of the tooth, for if it be too large there will be danger of breaking away a portion of the *alveolar process*; and if too small it will be likely to break off the tooth and leave the fangs remaining in the socket.

Before the instrument is applied, the gum should be completely separated from the neck of the tooth with a suitable lancet or sharp knife.

The point of the claw should be placed as far as possible on the neck of the tooth, even quite down to the jaw bone, and the fulcrum (covered with a handkerchief or cloth) be fixed a little below it on the opposite side, resting against the gum. The power is now to be steadily applied to the handle of the key until the tooth is moved, keeping the eye fixed on the tooth, in order to change the instrument to the opposite, or make any other alteration that may be necessary.

The attachment to the jaw should be gradually overcome, not with a sudden and violent turn of the instrument as is the practice of some. After the tooth is fairly started, the hand must be gradually raised, at the same time turning the instrument, so as to draw the tooth as nearly perpendicular as possible.

Sometimes the teeth are quite loose, and patient is led to believe, the operation may be performed without difficulty or pain. But this in general they will find to be a mistake.

If the tooth is broken loose, but hangs by a portion of flesh, or a sliver of the bone, the operation will now be finished most conveniently with a pair of forceps, by taking hold of, and raising the tooth straight from the socket, and dividing carefully whatever confines it to the gums. The gums, after the tooth is removed, are to be gently pressed into the wound from each side. Cold water is the best thing to take in the mouth after the extraction of a tooth, this will stop the bleeding, and prevent the liability of taking cold.

The teeth may be turned either out or in; but it will be found most convenient to turn the double teeth in; and the single or forward teeth out.

SETTING ARTIFICIAL TEETH.

If a front tooth is to be supplied, and still remains in the socket, it must be filed so as to leave it level with the rest. The natural cavity in the fang is then to be made of a suitable size and depth.

A similar hold is then to be drilled in the artificial crown, and a pivot of the toughest wood inserted, so fixed as to enter each cavity without much force where it will soon swell and make the tooth permanent. This pivot can be renewed when necessary.

In cases where no fang (root) remains, the crown may be so fitted as to set easy on the gums, and if there be more than one, they should be neatly and firmly connected; and at each side adjoining the standing teeth, a clasp, or spring of pure gold should be permanently fastened, the ends of which should extend partially around the permanent teeth, and if necessary a small hole may be drilled through each end of these clasps, and a ligature of silk, or India grass passed through them and round the teeth and secured by a knot on the inside, which can be renewed as occasion requires.

A

GLOSSARY,

OR

MEDICAL DICTIONARY;

Containing an explanation of all the difficult terms used in this work; together with the definition of most of the *hard words* that occur in medical science.

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A

Abdomen, the belly.

Abortion, miscarriage.

Abscess, a tumor or swelling containing matter.

Absorbents, medicines to correct acidity and absorb or dry superfluous moisture: also the small, delicate, transparent vessels which take up substances from the surface of the body, or from any cavity and carry it to the blood.

Abdominal, pertaining to the belly.

Abalienatio, *abalienation*, decay of the body or mind.

Abducent, the name of some muscles that draw parts back in an opposite direction to others.

Abductor, that which draws from, or separates one member of the body from another, as the

Abductor indicis manus muscle, draws the fore-finger from the rest towards the thumb.

Ablution, to wash off.

Abrasion, to rub or tear off.

Abscedentia, decayed parts of the body.

Abscission, the cutting away of a part, with an edged instrument.

Absorption, the taking up of substances applied to the mouths of the absorbing vessels.

Abstemious, temperate.

Abstraction, to draw away.

Accelerate, to hasten.

Accession, commencement; the accession of fever is the commencement of it.

Accretion, nutrition, growth.

The growing together of parts naturally separated, as the fingers and toes.

Acescent, sour.

Acetabulum, from acetum, vinegar : because it resembles the cup in which vinegar was held for the use of the table. It is the cup-like cavity of the os innominatum, which receives the head of the thigh bone.

Acetic acid, vinegar.

Acetate, The union of acetic acid with any salifiable base; thus, the acetate of lead (sugar of lead) is made by combining lead with acetic acid, or vinegar; acetate of zinc, by combining zinc with vinegar; acetate of potassa, by combining potassa with vinegar.

Acetum, vinegar.

Acetum colchici, vinegar of colchicum, or meadow saffron.

Acetum scilla, vinegar of squills.

Achillis tendo, tendon of Achilles. The tendon or cord of the heel, connected with the gastrocnemii muscles. Because, as fable reports, Thetis, the mother of Achilles, held him by that part when she dipped him in the river Styx, to make him invulnerable.

Acid, sour. The principal acids are made by the union of oxygen or hydrogen gas with an acidifiable base : thus, the sulphuric acid (oil of vitriol) is made by the union of sulphur with oxygen gas.

Acidifiable, capable of being converted into an acid by uniting with an acidifying principle, as with oxygen or hydrogen.

Acidity, sourness.

Acidulous, slightly sour.

Acoustic, relating to the ear, or to sound. Or that which is used to restore the sense of hearing.

Acrimony, a quality in substances by which they irritate, corrode, or dissolve.

Acromion, a process or protuberance of the scapula or shoulder blade.

Adducens, (from ad, and duco, to draw,) those muscles which draw the parts together to which they are connected.

Adductor, a drawer or contractor. The same as adducens.

Adeniform, glandiform, or resembling a gland.

Adenology, the doctrine of the glands.

Adeps, fat.

Adhesion, the growing together of parts.

Adhesive, having the property of sticking.

Adipocire, a fat like substance formed by the spontaneous conversion of animal matter.

Adipose, fatty.

Adipose membrane, the fat collected in the cells of the cellular membrane.

Adjuvantia, whatever assists

in preventing or curing diseases.

Adnata tunica, a membrane of the eye.

Adventitious, used in medicine in opposition to the term *hereditary*: a disease which is not hereditary is *adventitious*.

Adynamia, defect of vital power.

Aether, a supposed fine subtile fluid. Also a volatile liquor obtained by distilling a mixture of alcohol with a concentrated acid.

Æthiops mineral, the black sulphuret of mercury.

Ætiology, the doctrine of the causes of diseases.

Affusion, pouring a fluid upon something.

Agnesia, impotency in man.

Agglutination, the adhesive union or sticking together of substances.

Agrypnia, watchfulness, sleeplessness.

Ague cake, a hard tumor of the spleen, caused by intermittent fevers.

Ala, the wing of a bird. Also, the armpit.

Ala auris, the upper part of the external ear.

Ala nasi, the cartilage of the nose which forms the outer part of the nostril.

Alæformis, resembling a wing.

Alaris, formed like a wing; as, *musculus alaris exter-*

nus, means the external wing-like muscle.

Albuginea, a membrane of the eye, and of the testicle.

Albumen, in medicine, it is coagulable lymph. The white of the eye contains it in abundance.

Albumen ovi, the white of an egg.

Albus, white, it is applied to many parts from their white color, as *linea alba*.

Aliment, nourishment.

Alimentary canal, a name for all those passages which the food passes through, from the mouth to the anus.

Alimentary duct, the alimentary canal. The thoracic duct is sometimes so called.

Alkali, a substance which combines with acids so as to neutralize their activity, and produce salts. Potash, soda, magnesia, &c., are alkalies.

Alkalescent, having the properties of alkali.

Alcohol, or alcohol, distilled and rectified spirits. It was first obtained from the juice of the grape, and called spirit of wine; but the same thing is now extracted from grain, molasses, and sugar cane. It constitutes the basis of the spiritous liquors called brandy, rum, gin, whiskey, &c.

Almonds of the ears or throat, a popular name for the *tonsils*.

Aloetic, is applied to any medicine in which aloes is the chief ingredient.

Alterative medicines, are those remedies which are given with a view to re-establish the healthy functions of the animal economy, without producing any sensible evacuations. Some preparation of mercury, as, calomel in very small doses, is the alterative most generally used. There is no question but that it does frequently produce, in this way a salutary alteration in the secretions of the body; but the manner in which this alteration is effected is no better known to physicians than to others.

Alveolus, a small cavity, the socket of a tooth.

Alvus, the stomach and bowels.

Alvine, relating to the bowels.

Amalgam, a substance produced by mixing mercury with metal.

Amaurosis, a paralytic disease of the eye attended with partial or total loss of sight.

Amenorrhœa, obstruction of the menses from other causes than pregnancy and old age.

Amentia, weakness of intellect.

Ammonia, so called because it is obtained from sal ammoniac, which received

its name from being dug out of the earth near the temple of Jupiter Ammon.

Ammonia gas, is an elastic, invisible, alkaline air, of a pungent smell, and acid taste; combined with water, it forms aqua ammonia, or liquid hartshorn.

Amnion, the internal membrane surrounding the fœtus.

Amnesia, forgetfulness.

Ana, in medical prescriptions, it means "of each." It is generally abbreviated thus, "aa."

Anæsthesia, loss of the sense of touch.

Analepsis, a recovering of strength after sickness.

Analeptic, that which recovers the strength which has been lost by sickness.

Analysis, the resolving of any substance into its primary, or constituent parts, by chemical action.

Anamnesis, memory.

Anamnestic, whatever strengthens the memory.

Anaphrodisia, impotence.

Anasarca, a species of dropsy from a general accumulation of lymph in the cellular system.

Anastomosis, the communication of vessels with one another.

Anchylosis, a stiff joint.

Ancon, the elbow.

Anconoid, belonging to the elbow.

Androgynus, an hermaphrodite.

Anemia, flatulence.

Angina, sore throat.

Anima, a soul; the principle of life in the body.

Animi deliquium, fainting.

Annular, ring-like.

Anodyne, a medicine which eases pain and procures sleep.

Anorexia, want of appetite without loathing of food.

Anosmia, a loss of the sense of smelling.

Antacid, that which destroys acidity or sourness.

Antagonist, applied to those muscles which have opposite functions; flexor and extensor muscles are antagonists to each other; the flexor muscle of a limb contracts it, the extensor stretches it out.

Anterior, before.

Anthelmintic, whatever destroys worms.

Anatomy, a dissection or cutting up; the science which explains the structure, situation, and uses, of the parts of an organized body.

Antihelix, the inner circle of the external ear.

Antihysteria, that which relieves hysterics.

Antimonial, a composition in which antimony is the chief ingredient.

Antinephritic, a remedy for kidney complaints.

Antiscorbutic, a remedy for the scurvy.

Antiseptic, good against mortification.

Antispasmodic, having the power of allaying spasm.

Anus, the rectum or fundament; the lower extremity of the great intestine.

Aorta, the great artery of the body, which arises from the left ventricle of the heart, forms a curvature in the chest, and descends into the abdomen.

Apex, the extremity of a part; as, the apex of the tongue, or nose.

Aphonia, a suppression of the voice.

Aphorism, a short maxim.

Aphtha, sore mouth; the thrush.

Aponeurosis, a tendinous expansion.

Apophysis, a process, projection, or protuberance of a bone beyond a plain surface.

Apyrexia, without fever; the intermission of feverish heat.

Aqua, water.

Aqua ammonia, water of ammonia, hartshorn.

Aqua fortis, strong water, nitric acid.

Aqueous, watery.

Aqueous humor, the watery fluid which fills both chambers of the eye.

Arachnoid, web-like.

Arachnoid membrane, a thin membrane of the brain between the dura and pia ma-

- ter. Also the tunic of the crystalline lens and vitreous humor of the eye.
- Ardent*, burning hot. Applied to fevers, alcohol, &c.
- Ardor*, a burning heat.
- Ardor febrilis*, feverish heat.
- Ardor urinæ*, scalding of the urine.
- Argol*, crude tartar, as taken from the inside of wine vessels.
- Argentum*, silver.
- Argenti nitras*, or *argentum nitratum*, nitrate of silver, or lunar caustic.
- Argilla*, white clay.
- Argillaceous*, of the nature of argilla.
- Aromatic*, that which has an agreeable pungent taste, as cinnamon, &c.
- Arteriotomy*, the operation of opening an artery.
- Arthritic*, pertaining to the gout.
- Arthritis*, the gout.
- Arthrodia*, that connexion of bones in which the head of one bone is received into the superficial cavity of another, so as to admit of motion in every direction.
- Articulation*, the connexion of bones with each other.
- Arytanoid*, funnel shaped.
- Asbestos*, a fibrous flexible mineral, resisting, to a great degree, the action of fire.
- Ascites*, dropsy of the belly.
- Asper*, rough. Applied to those parts which are rough, as, *linea aspera*.
- Asphyxia*, the state of the body, during life, in which the pulsation of the heart and arteries cannot be perceived.
- Asthenia*, extreme debility.
- Asthenology*, the doctrine of diseases arising from debility.
- Astringent*, or adstringent, that which contracts the fibres of the body.
- Atlas*, the name of the first vertebra of the neck, which sustain the head.
- Atony*, weakness.
- Atonic*, having a diminution of strength.
- Atrophy*, nervous consumption.
- Attenuant*, possessing the power of making the blood thin.
- Attollens*, signifies to lift up. It is applied to some muscles the office of which is to lift up the parts to which they are attached.
- Auditory*, belonging to the organ of hearing.
- Aura*, any subtile vapor or exhalation.
- Auris*, the ear.
- Auricle*, a little ear.
- Aurum*, gold.
- Axilla*, the arm-pit.
- Axillary*, belonging to the arm-pit.
- Axis*, the second vertebra of the neck, called also *dentatus*.
- Axungia*, hogs lard.
- Azygos*, single, without a fellow.

low. Applied to single bones, veins, muscles, &c.
Antiphlogistic, counteracting inflammation.
Adult, of full age.

B

Bacca, a berry.
Balsami oleum, balsam of Gilead.
Bark, is used by way of eminence to signify Peruvian bark.
Barometer, an instrument to determine the weight of the air.
Bath, when a pleasant glow succeeds the use of the temperate or cold bath, it is beneficial; if chilliness and headache, it is injurious.
Benzoic acid, flowers of ben-zoin.
Bibulous, attracting moisture.
Biceps, two heads. Applied to such muscles as have two distinct origins or heads.
Bicuspidatus, having two points.
Biscuspis, the name of those teeth which have double points.
Biennial, of two years duration.
Bifidus, forked.
Bifurcate, to divide into two branches.
Bile or *gall*, a fluid secreted by the liver into the gall bladder, and thence discharged into the intestines, for the purpose of promoting digestion.

Biliary, belonging to the bile.
Bilious, applied to those diseases which arise from too copious a secretion of bile.
Bistoury, any small knife for surgical purposes.
Bisulphate, a sulphate with an additional quantity of sulphuric acid.
Bombic acid, acid of the silk worm.
Bougie, a long slender instrument made of wax, or of gum elastic, introduced into a passage to keep it open or to enlarge it.
Brachial, belonging to the arm.
Brandy, a spirituous liquor distilled from wine.
Bucca, the cheek.
Buccinator muscle, the muscle of the cheek which acts in blowing the trumpet.
Bolus, a form of medicine in a mass larger than pills.
Bulbous, of a bulb like shape, as the root of garlic or onion.
Bursa, a bag.
Bursa mucosa, a mucous bag, containing a kind of mucous fat, to lubricate tendons, muscles, and bones, in order to render their motions easy.

C

Cachexia, a bad habit of body, known by a depraved or vitiated state of the solids and fluids.
Cæcum, (from cæcus, blind ;

- so called from its being perforated at one end only.) The blind gut. The first portion of the large intestines, placed in the right iliac region, about four fingers breadth in length. It is in this intestine, that the ileum terminates by a valve called the valve of the cœcum.
- Calcareous*, partaking of the nature of lime.
- Calcium*, the metallic basis of lime.
- Calculus*, gravel or stone in the kidney or bladder.
- Calculous*, stony or gravelly.
- Callous*, hard or firm.
- Cantharides*, Spanish flies.
- Capillary*, fine, hair-like.
- Caloric*, the principle of heat.
- Canine teeth*, the four eye teeth are so called from their resemblance to those of the dog.
- Capsule of the joints*, or capsular ligament, a membranous covering which encloses the joints like a bag.
- Carious*, rotten. Applied principally to the bones and teeth.
- Carminatives*, medicines for dispelling wind.
- Cataplastm*, a plaster.
- Cardia*, the heart.
- Carditis*, inflammation of the heart.
- Catharsis*, purgation of the excrements or humors, either medically or naturally.
- Cathartic*, a purge; that which purges.
- Catholicon*, a universal medicine.
- Catheter*, a pipe to draw off urine.
- Caustics*, burning applications.
- Cautery*, the act of burning with a caustic, or hot iron.
- Cutaneous*, belonging to the skin.
- Characteristic*, a mark, sign, token.
- Charcoal*, a coal made by burning wood under turf or otherwise.
- Chronic*, slow, lingering; in opposition to acute.
- Chyle*, a milky fluid, separated from the aliment in the intestines, mixing with, and forming blood.
- Circulation*, the motion of the blood which is propelled by the heart through the arteries, and returned by the veins.
- Coagulum*, a curd.
- Comatose*, inclined to sleep.
- Compress*, several folds of a linen rag.
- Concave*, hollowed out like a bowl.
- Confluent*, running together.
- Constipation*, obstruction, costiveness.
- Contagion*, infectious matter.
- Contusion*, a bruise.
- Convalescence*, a state of recovery from sickness.
- Conver*, opposite to concave;

- rising, like the surface of a globe.
- Convulsion*, a fit, a spasmodic contraction of the muscles.
- Cephalæ*, the head.
- Cephalic*, pertaining to the head.
- Cerate*, a composition of wax, oil, or lard, with or without other ingredients.
- Cerumen*, the wax of the ear.
- Cervical*, belonging to the neck.
- Cervix*, the neck.
- Chalybeate*, of, or relating to iron. A term given to any composition in which iron is an ingredient.
- Chemosis*, inflammation of the eye.
- Chirurgery*, surgery.
- Chirurgical*, surgical.
- Chlorate*, a compound of chloric acid with a salifiable base.
- Chondros*, or chondrus, a cartilage.
- Chondrology*, a discourse on the cartilages.
- Chorea*, St. Vitus's dance.
- Chylopoietic*, any thing connected with the formation of chyle.
- Chyme*, the ingested mass of food that passes from the stomach into the duodenum, and from which the chyle is prepared in the small intestines by the admixture of the bile, &c.
- Cilia*, the eyelids, or eyelashes.
- Ciliar*, or ciliary, belonging to the eyelids or eyelashes.
- Cinchona*, peruvian bark.
- Cæliac*, belonging to the belly.
- Collapse*, a wasting or shrinking of the body or of strength.
- Colliquative*, any excessive evacuation which melts down, as it were, the strength of the body; hence, colliquative sweats, collicative diarrhea, &c.
- Collyrium*, an eye water.
- Colon*, the greater portion of the large intestine.
- Coma*, a morbid inclination to sleep; lethargic drowsiness.
- Compressor*, that which presses together. Applied to those muscles which press together the parts on which they act.
- Concretion*, the growing together of parts which in a natural state are separate.
- Concussion*, (from concutio, to shake together,) concussion of the brain.
- Condyle*, a round eminence of a bone in any of the joints.
- Confection*, any thing made up with sugar.
- Congestion*, a collection of blood or other fluid; thus we say a congestion of blood in the vessels, when they are over distended, and the motion is slow.
- Conglobate*, ball or bunch-like.

- Conglobate gland*, is a gland formed of a contortion of lymphatic vessels, connected together by cellular structure, having neither a cavity nor any excretory duct.
- Conglomerate*, heaped together.
- Conglomerate gland*, consists of a number of small glomerate glands, the excretory ducts of which all unite into one common duct.
- Constrictor*, a name given to those muscles which contract any opening of the body.
- Contraction*, the act of drawing together.
- Contra-indication*, a symptom attending a disease which forbids the use of a remedy which would otherwise be employed; for instance, bark and acids are usually given in putrid fevers; but if there be difficulty of breathing or inflammation of any viscus, they are contra-indications to their use.
- Cornea*, the sclerotic membrane of the eye is so called because it is of a horny consistence.
- Coronal*, belonging to a crown or garland.
- Coronoid*, like a crow's beak.
- Corpus*, the body.
- Corrosive*, having the property of eating or corroding.
- Corrugator*, the name of muscles, the office of which is to wrinkle or corrugate the part on which they act.
- Cortex*, the bark of any thing.
- Cortical*, belonging to the bark.
- Coryza*, an increased discharge of mucus from the nose.
- Cosmetic*, that which improves the complexion.
- Costa*, a rib.
- Costalis*, belonging to a rib.
- Couching*, the operation of removing the opaque lens out of the eye by means of a needle constructed for that purpose.
- Crepitus*, a puff, or little noise.
- Creta*, chalk.
- Cibriiform*, perforated like a sieve.
- Cricoid*, ring-like.
- Cricoid cartilage*, a round-like cartilage of the larynx.
- Crico*, names compounded with this word belong to muscles which are attached to the cricoid cartilage.
- Corroborants*, tonics or strengthening medicines.
- Crisis*, a certain period in a disease at which there happens a decisive alteration, either for better or worse.
- Critical*, decisive or important.
- Crista*, any thing which has the appearance of a crest, like the comb on the head of a cock.
- Crucial*, cross-like.

Crucible, a chemical vessel made mostly of earth to bear the greatest heat.

Crudity, rawness, indigestion.

Cruor, the red coagulable part of the blood.

Crus, the leg. The root or origin of some parts of the body from their resemblance to a leg or root.

Crura, the plural of crus.

Crural, belonging to the leg or lower extremity.

Crystalline, crystal-like.

Cubit, the fore arm; that part between the elbow and wrist.

Cubital, belonging to the fore arm.

Cuboid, shaped like a cube.

Cuneiform, wedge-like.

Cynanche, sore throat.

Cystic, belonging to the urinary or gall bladder.

Cystitis, inflammation of the bladder.

Cystotomia, the operation of cutting the bladder.

D

Debility, weakness.

Deciduous, falling off.

Decoction, a preparation by boiling.

Decumbent, inclining downwards.

Decomposition, the separation of the component parts or principle of bodies from each other.

Decussate, to cross each other.

Deglutition, swallowing.

Deteterious, poisonous, deadly.

Deliquescent, having the property of attracting moisture from the atmosphere.

Deliquium, a fainting.

Delirium, light-headedness.

Deltoid, shaped like the Greek letter delta

Demulcent, softening sheathing.

Dens, a tooth.

Dentition, teething.

Denude, to make bare.

Deobstruent, that which removes obstructions.

Dephlogisticated, deprived of the inflammable principle.

Depression, when the bones of the skull are forced inwards by a fracture, they are said to be depressed.

Depressor, that which depresses. Applied to a muscle which depresses the part on which it acts.

Dessiccative, an application to dry up the humors and moisture running from a wound or ulcer.

Desquamation, scaling off.

Detergent, cleansing.

Diaphoretic, promoting perspiration.

Diastasis, a separation of the ends of the bones.

Diastole, the dilatation or beating of the heart and arteries.

Diatheasis, any particular state of the body; thus, in inflammatory fever, there is

an inflammatory diathesis, &c.

Dietetic, relating to diet or regimen.

Digestive, that which promotes the suppuration of wounds or ulcers, as, warm poultices, &c.

Diluents, substances to dilute or make thin.

Diploe, the spongy part in the middle of the skull bone.

Discutient, a repelling medicine.

Dispensatory, a book which treats of the composition of medicines.

Dislocation, a joint put out of place.

Disposition, tendency.

Diuretic, promoting the discharge of urine.

Drastics, active or strong purges.

Duodenum, the first portion of the small intestines.

Dura mater, the membrane which surrounds the brain, and adheres strongly to the internal surface of the cranium.

Dyspeptic, belonging to bad digestion.

Dysphonia, difficulty of speaking.

Dysphagia, difficulty of swallowing.

Dispnoea, difficulty of breathing.

Dysuria, difficulty of urine.

E

Ecchymosis, extravasation.

A black and blue swelling, either from a bruise or spontaneous extravasation of blood.

Effervescence, the agitation which is produced by mixing those substances which cause the evolution of a gas.

Efflorescence, a morbid redness of the skin.

Effluvia, exhalation.

Effusion, means the escape of any fluid out of the vessel or viscus naturally containing it, and its lodgment in another cavity, in the cellular substance, or in the substance of parts.

Elastic, springy.

Electricity. "A property which certain bodies possess when rubbed, heated, or otherwise excited, whereby they attract remote bodies, and frequently emit sparks, or streams of light.

If a piece of sealing-wax and of dry warm flannel be rubbed against each other, they become capable of attracting and repelling light bodies. A dry and warm sheet of writing paper, rubbed with India rubber, or a tube of glass rubbed upon silk, exhibits the same phenomena. In these cases, the bodies are said to be electrically excited; and when in a dark room, they always appear luminous. If two pitch-balls be electrified by touching them

with the sealing wax, or with the flannel, they repel each other; but if one pitch ball be electrified by the wax, and the other by the flannel, they attract each other. The same applies to the glass and silk; it shows a difference in the electricities of the different bodies, and the experiment leads to the conclusion, that bodies similarly electrified repel each other; but that when dissimilarly electrified, they attract each other.

The term electrical repulsion is here used merely to denote the appearance of the phenomenon, the separation being probably referrible to the new attractive power which they acquire, when electrified, for the air and other surrounding bodies. If one ball be electrified by sealing wax rubbed by flannel, and another by silk rubbed with glass, those balls will repel each other; which proves that the electricity of the silk is the same as that of the sealing wax. But if one ball be electrified by the sealing wax and the other by the glass, they then attract each other, showing that they are oppositely electrified.

These experiments are most conveniently performed with a large downy feather, suspended by a silken thread. If an excited glass tube be brought

near it, it will be receive and retain its electricity; it will be first attracted and then repelled; and upon re-exciting the tube and again approaching it, it will not again be attracted, but retain its state of repulsion; but upon approaching it with excited sealing wax, it will instantly be attracted, and remain in contact with the wax till it has acquired its electricity, when it will be repelled, and in that state of repulsion it will be attracted by the glass. In these experiments, care must be taken that the feather remains freely suspended in the air, and touches nothing capable of carrying off its electricity.

The terms vitreous and resinous electricity were applied to these two phenomena; but Franklin, observing, that the same electricity was not inherent in the same body, but that glass sometimes exhibited the same phenomena as wax, and vice versa, adopted another term, and instead of regarding the phenomena as dependent upon two electric fluids, referred them to the presence of one fluid, in excess in some cases, and in deficiency in others. To represent these states, he used the terms plus and minus, positive and negative. When glass is rubbed with silk, a portion of electricity leaves the silk, and enters the glass; it becomes

positive, therefore, and the silk negative; but when sealing-wax is rubbed with flannel, the wax loses, and the flannel gains; the former, therefore, is negative, and the latter positive.

All bodies in nature are thus regarded as containing the electric fluid, and when its equilibrium is disturbed, they exhibit the phenomena just described. The substances enumerated in the following table become positively electrified when rubbed with those which follow them in the list; but with those which precede them they become negatively electrical.

Cat's skin,	Paper,
Polished glass,	Silk,
Woolen cloth,	Gum lac,
Feathers,	Rough glass.

When an insulated plate of zinc is brought into contact with one of copper or silver, it is found, after removal, to be positively electrical, and the silver or copper is left in the opposite state.

The most oxidisable metal is always positive, in relation to the least oxidisable metal, which is negative, and the more opposite the metals in these respects the greater the electrical excitation; and if the metals be placed in the following order, each will become positive by the contact of that which precedes it, and negative by the contact of that

which follows it; and the greatest effect will result from the contact of the most distant metals:

Platinum,	Mercury,	Tin.
Gold,	Copper,	Lead.
Silver,	Iron,	Zinc.

If the nerve of a recently killed frog be attached to a silver probe, and a piece of zinc be brought into the contact of the muscular parts of the animal, violent convulsions are produced every time the metals thus connected are made to touch each other. Exactly the same effect is produced by an electric spark, or the discharge of a very small Leyden-phial.

If a piece of zinc be placed upon the tongue, and a piece of silver under it, a peculiar sensation will be perceived every time the two metals are made to touch.

In these cases the chemical properties of the metals are observed to be affected. If a silver and zinc wire be put into a wine glass full of dilute sulphuric acid, the zinc wire will only evolve gas; but upon bringing the two wires in contact with each other, the silver will also copiously produce air bubbles.

If a number of alternations be made of copper and silver leaf, zinc leaf, and thin paper, the electricity excited by the contact of the metals will be

rendered evident to the common electrometer.

If the same arrangement be made with the paper moistened with brine, or a weak acid, it will be found, on bringing a wire communicating with the last copper plate into contact with the first zinc plate, that a spark is perceptible, and also a slight shock, provided the number of alternations be sufficiently numerous. This is the voltaic apparatus or battery. Several modes of constructing this apparatus of have been adopted, with a view to render it more convenient or active. Sometimes double plates of copper and zinc soldered together, are cemented into wooden troughs in regular order, the intervening cells being filled with water, or saline, or acid solutions.

Another form consists in arranging a row of glasses, containing dilute sulphuric acid in each of which is placed a wire, or plate of silver, or copper, and one of zinc, not touching each other, but so connected by metallic wires, that the zinc of the first cup may communicate with the copper of the second; the zinc of the second with the copper of the third; and so on throughout the series.

The effects of electricity are exhibited on a magnificent scale in the thunder storm, which results from the accu-

mulation of electricity in the clouds, as was first experimentally demonstrated by Dr. Franklin, who also first showed the advantage of pointed conductors, as safe-guards to buildings. In these cases the the conducting rod or rods should be of copper, or iron, and from half to three-fourths of an inch diameter. Its upper end should be elevated three or four feet above the highest part of the building, and all the metallic parts of the roof should be connected with the rod, which should be perfectly continuous throughout, and passing down the side of the building, penetrate several feet below its foundation, so as always to be immersed in a moist stratum of soil, or if possible, into water.

During a thunder storm the safest situation is in the middle of a room, at a distance from the chimney, and standing upon a woolen rug, which is a non-conductor. Blankets and feathers being non-conductors, a bed is a place of comparative safety, provided the bell-wires are not too near, which are almost always melted in houses struck by lightning. When out of doors, it is dangerous to take shelter under trees; the safest situation is within some yards of them, and upon the driest spot that can be selected.

When the sound instantly succeeds the flash, the persons who witness the circumstance are in some danger; when the interval is a quarter of a minute, they are secure.

The discharge of electricity in a thunder storm is sometimes only from cloud to cloud; sometimes from the earth to the clouds; and sometimes from the clouds to the earth; as one or the other happens to be positive or negative."

Electuary, see confection.

Elevator, the name of a muscle the office of which is to lift up the part to which it is attached. Also, the name of a surgical instrument.

Emetic, that which excites vomiting.

Emmenagogue, that which promotes the monthly evacuations.

Emollient, softening.

Empiric, one who practises the healing art upon experience, and not theory.

This is the true meaning of the word; but it is now applied in a very opposite sense, to those who deviate from the line of conduct pursued by scientific and regular practitioners, and vend nostrums, or sound their own praise in the public papers.

Empyreuma, a peculiar and offensive smell that distilled waters and other substances

receive from being exposed to heat in closed vessels.

Empyreumatic, of a burnt smell; thus empyreumatic oils are those distilled with a great heat and impregnated with a smell of the fire.

Emulgent, the artery and vein which go from the aorta and vena cava to the kidneys are so called.

Emaciation, wasting of flesh.

Enamel, the outside covering of the teeth.

Endemic, a disease peculiar to a certain district.

Enervate, to weaken.

Emulsion, a soft and somewhat oily medicine resembling milk. An imperfect combination of oil and water, by the intervention of some other substance capable of combining with both these substances.

Emunctory, that which drains off; the excretory ducts of the body are so termed: thus the exhaling arteries of the skin constitute the great emunctory of the body.

Enarthrosis, the ball and socket joint; a moveable connexion of bones, in which the round head of one is received into the deeper cavity of another, so as to admit of motion in every direction.

Enema, a clyster.

Ensiform. shaped like a sword.

Enteritis, inflammation of the intestines.

Entero, names compounded with this word belong to things which resemble an intestine.

Epigastrium, the part immediately over the stomach.

Epiglottis, the cartilage at the root of the tongue that falls upon the glottis or upper opening of the windpipe or trachea. While the back of the tongue is drawn backwards in swallowing, the epiglottis is put over the opening, shutting the passage, in order to prevent food or drink from passing down the windpipe.

Epidemic, any disease that attacks many people at the same season, and in the same place.

Epidermis, the cuticle or scarf-skin.

Epiploon, see omentum.

Epispastic, a blister; having the qualities of a blister.

Epistaxis, bleeding at the nose with pain or fullness of the head.

Epsom, the name of a village in Surrey, about eighteen miles from London, near which there is a mineral spring called Epsom water.

Epsom salts, sulphate of magnesia. It was formerly obtained by boiling down the mineral water found in the vicinity of Epsom in

Surrey. It is at present prepared from sea water.

Epulatic, that which promotes the formation of skin.

Errhine, that which excites sneezing.

Eructation, belching.

Equilibrium, equal wight.

Eruption, a discoloration, or spots on the skin; as the eruption of small pox, measles, nettlerash, itch, &c.

Erythema, inflammatory blush. A morbid redness of the skin, as observed upon the cheeks of hectic patients.

Eschar, the portion of flesh that is destroyed by the application of a caustic, and which sloughs away.

Escharotic, caustic, corrosive.

Esculent, eatable, good for food.

Etherial, a term applied to any highly rectified essentail oil or spirit.

Ethmoid, sieve-like.

Eupeptic, that which is easy of digestion.

Exacerbation, the increase of any disease.

Exanthemata, all diseases beginning with fever and followed by an eruption on the skin.

Excitability, that condition of living bodies wherein they can be made to exhibit the functions and phenomena, which distinguish

them from inanimate matter. Or, it may be said to be the capacity of organized beings to be affected by various agents called exciting powers.

Exciting, that which has the power of impressing the solids, so as to alter their action, and thus produce disease.

Excoriation, an abrasion or loss of skin.

Excrement, the alvine fœces.

Excretion, the separation of those fluids from the body, that are supposed to be useless, as the urine, perspiration, and alvine fœces.

Exfoliation, the separation of a dead piece of bone from the living.

Exostosis, a morbid enlargement, or hard tumor of a bone.

Expectorant, that which promotes the expectoration or discharge of mucus from the lungs.

Exhibit, to administer.

Extremities, the arms and legs.

Expiration, that part of respiration or breathing in which the air is thrust out from the lungs.

Extensor, that which stretches out. Applied to those muscles which perform that office.

Extirpation, cutting out.

Extraction, the taking of extraneous substances out of

the body, or some diseased part of the body itself,—as the teeth, the cataract.

Extract, that which is obtained by boiling down a decoction, or by evaporating inspissated juices.

Extravasation, a term applied by surgeons to fluids, which are out of their proper vessels.

F

Fascia, a bundle.

Fauces, a cavity behind the tongue, palatine arch, uvula, and tonsils; from which the pharynx and larynx proceed.

Febres, fevers.

Febrifuge, that which possesses the property of abating the violence of any fever.

Femoral, belonging to the thigh.

Femur, the thigh.

Fenestra, a window, entry, or hole.

Fibre, a very simple filament.

It is owing to the difference in the nature and arrangements of the fibres that the structure of the several parts of animals and vegetables differ, hence the barks, woods, leaves, &c., of vegetables, and the cellular structure, membranes, muscles, vessels, nerves, and, in short, every part of the body, has its fibres variously constituted and arranged, so as to form these different parts.

Fibula, the smallest bone of the leg. It is situated on the outer side of the tibia, and forms at its lower end, the outer ankle.

Filament, in anatomy, it is applied to a small thread-like portion adhering to any part, and frequently synonymous with fibre.

Filtration, an operation by means of means of which a fluid is mechanically separated from consistent particles merely mixed with it. It does not differ from straining.

An apparatus fitted up for this purpose is called a filter. The form of this is various, according to the intention of the operator. A piece of tow, or wool, or cotton, stuffed into the pipe of a funnel, will prevent the passage of grosser particles, and by that means render the fluid clearer which comes through.

Sponge is still more effectual. A strip of linen rag wetted and hung over the side of a vessel containing a fluid, in such a manner as that one end of the rag may be immersed in the fluid, and the other end remain without, below the surface, will act as a syphon, and carry over the clearer portion. Linen or woollen stuffs may either be fastened over the mouths of proper vessels, or fixed to a frame, like a sieve, for the purpose of filter-

ing. All these are more commonly used by cooks and apothecaries than by philosophical chemists, who, for the most part, use the paper called cap paper, made up without size.

As the filtration of considerable quantities of fluid could not be effected at once without breaking the filter of paper, it is found requisite to use a linen cloth, upon which the paper is applied and supported.

Some fluids, as turbid water, may be purified by filtering through sand. A large earthen funnel, or stone bottle with the bottom beaten out, may have its neck loosely stopped with small stones, over which smaller may be placed, supporting layers of gravel increasing in fineness, and lastly covered to the depth of a few inches with fine sand all thoroughly cleansed by washing. This apparatus is superior to a filtering stone, as it will cleanse water in large quantities, and may readily be renewed when the passage is obstructed, by taking out and washing the upper stratum of sand.

A filter for corrosive liquors may be constructed on the same principles, of broken and pounded glass.

Fimbria, a fringe. In anatomy it is applied to curled

curled membranous productions.

Fissure, that species of fracture in which the bone is slit, but not completely divided. Also, a deep and long depression in part.

Fistula, a term in surgery, applied to a long and sinous ulcer that has a narrow opening, and which something leads to a larger cavity, and has no disposition to heal.

Flesh, the muscles of animals; a common name for all the soft parts of an animal. It is also applied to leaves, fruit, &c., which have the appearance or consistence of flesh.

Flexor, the name of several muscles, the office of which is to bend the parts into which they are inserted.

Flexuous, full of turnings and windings, a stem is so named which is zigzag, forming angles alternately from right to left and from left to right.

Flux, a dysentery. It is also used to denote any substance or mixture added to assist the fusion of metals.

Fluxion, a term mostly applied by chemists, to signify the change of metals, or other bodies, from the solid into the fluid state, by application of heat.

Fœtus, the child is so called from the fifth month till its

birth. Previous to the fifth month it is called *embryo*.

Follicle, a small bag; applied to glands.

Fomentation, a sort of partial bathing, applying hot flannels to any part, dipped in medicated decoctions, whereby steams are communicated to the parts, their vessels are relaxed, and their morbid action sometimes removed.

Fontanel fontanella, or *fons pulsatilis*, the space between the bones of the head, from birth until the third year of life. The larger space is in the fore part of the head, between the frontal and parietal bones; the lesser space is between the parietal and occipital bones.

Foramen, a little opening.

Fomites, a term mostly applied to substances imbued with contagion.

Formula, a little form of prescriptions, such as physicians direct in extemporaneous practice; in distinction from the greater forms in pharmacopias, &c.

Fossa, a little depression or sinus.

Fracture, a broken bone.

Frenulum, the cataneous folds under the apex or end of the tongue, that connect tongue to the infra-lingual cavity. It is sometimes, in infancy, so short as to prevent the child from sucking,

when it is necessary to cut it in order to open more room for the motion of the tongue.

Frons, the front part of the head, forehead.

Fulcrum, a prop or support.

Fuller's earth, an earth found in large beds in Buckinghamshire and Surrey, composed of silica, alumine, magnesia, lime, muriate of soda, a trace of potassa, and oxide of iron.

Fulmination, detonation. A quick and lively explosion of bodies, such as takes place with fulminating gold, fulminating powder, and in the combustion of a mixture of inflammable gas and vital air.

Fumigation, the application of fume to destroy contagions, miasmata or effluvia.

The most efficacious substance for this purpose is chlorine; next to it the vapor of nitric acid; and lastly, that of the muriatic acid. The fumes of heated vinegar, burning sulphur, or the smoke of exploded gun powder, are not to be depended on for counteracting contagion. The air of dissecting rooms should be nightly fumigated with chlorine, whereby their atmosphere would be more wholesome and agreeable during the day.

Fetid, of an offensive smell.

Farinaceus, meally.

First passages, stomach and bowels.

Flatulent, windy.

Friction, the act of rubbing.

Fungus, proud flesh.

Funiculus, a little cord.

Funis, a rope or cord.

Furfur, bran. Also a disease of the skin in which the cuticle keeps falling off in small scales like bran.

Furfuraceous, bran-like. A term applied to the bran-like sediment occasionally deposited in the urine.

Furor, fury, rage.

Furunculus, a boil.

Fusibility, capability of being melted.

Fusiform, spindle-shaped or tapering.

G

Galactorrhœa, an excess or overflowing of the milk.

Gall, the bile.

Gali-bladder, an oblong membranous receptacle, situated under the liver, to which it is attached in the right hypochondrium.

It is composed of three membranes, a common, a fibrous, and a villous membrane. Its use is to retain the bile which regurgitates from the hepatic duct, there to become thicker, more acrid, and bitter, and to send it through the cystic duct, which proceeds from its neck into the ductus communis choledochus, to be sent on to the duodenum.

Gall-stones, hard concrete bodies formed in the gall bladder of animals.

Gangrene, the first state of mortification.

Galvanism. "A professor of anatomy, in the university of Bologna, named *Galvani*, was one day making experiments on electricity in his laboratory: near the machine were some frogs that had been flayed, the limbs of which became convulsed every time a spark was drawn from the apparatus.

Galvani, surprised at this phenomenon, made it a subject of investigation, and discovered that metals, applied to the nerves and muscles of these animals, occasioned powerful and sudden contractions, when disposed in a certain manner. He gave the name of animal electricity to this order of new phenomena, from the analogy that he considered existing between these effects and those produced by electricity.

The name animal electricity has been superseded, notwithstanding the great analogy that exists between the effects of electricity and those of Galvanism, in favor of the latter term; which is not only more applicable to the generality of the phenomena, but likewise serves to perpetuate the memory of the discoverer.

In order to give rise to Galvanic effects in animal bodies, it is necessary to establish a communication between two points of one series of nervous and muscular organs. In this manner a circle is formed, one arch of which consists of the animal parts, rendered the subject of experiment, while the other arch is composed of excitatory instruments, which generally consist of several pieces, some placed under the animal parts called supporters, others destined to establish a communication between the latter, are called conductors. To form a complete Galvanic circle, take the thigh of a frog, deprived of its skin; detach the crural nerve, as far as the knee; put it on a piece of zinc; put the muscles of the leg on a piece of silver; then finish the excitatory arch, and complete the Galvanic circle by establishing a communication by means of the two supporters; by means of iron or copper wire, pewter or lead. The instant that the two communicators touch the two supporters, a part of the animal arch formed by the two supporters will be convulsed. Although this disposition of the animal parts, and of Galvanic instruments, be most favorable to the developement of the phenomena, yet the composition of the animal and excitatory arch may be much

varied. Thus contractions are obtained, by placing the two supporters under the nerve, and leaving the muscle out of the circle, which proves that nerves essentially constitute the animal arch.

It is not necessary for nerves to be entire in order to produce contractions. They take place whether the organs be tied or cut through, provided there exists a simple contiguity between the divided ends. This proves that we cannot strictly conclude what happens in muscular action, from that which takes place in Galvanic phenomena; since, if a nerve be tied or divided, the muscles on which this is distributed lose the power of action.

If silver has been applied to nerves, and zinc to muscles, the irritability of the latter increases in proportion to the time they have remained in the chain. By this method, the thighs of frogs have been revived in some degree, and afterward become sensible to stimuli, that before had ceased to act on them. By distributing the metals in an inverse manner, applying zinc to nerves, and silver to muscles, an effect absolutely contrary is observed; and the muscles that possess the most lively irritability when placed in the chain, seem to be rendered en-

tirely paralytic if they remain long in this situation.

This difference evidently depends on the direction of the Galvanic fluid, determined towards the muscles or nerves, according to the manner in which these metals are disposed, and this is of some importance to be known for the application of Galvanic means to the cure of diseases.

GALVANIC PILE.

Volta's apparatus is as follows:

Raise a pile, by placing a plate of zinc, a flat piece of wet cord, and a plate of silver, successively; then a second piece of zinc, &c., until the elevation is several feet high; for the effects are greater in proportion to its height; then touch both extremities of the pile, at the same instant, with one piece of iron wire; at the moment of contact, a spark is excited from the extremities of the pile, and luminous points are after perceived at different heights, where the zinc and silver come into mutual contact. The zinc end of this pile appears to be negatively electrified; that formed by the silver, on the contrary, indicates marks of positive electricity.

If we touch both extremities of the pile, after having dipped our hands into water,

or what is better, a saline solution, a commotion, followed by a disagreeable prickling in the fingers and elbow, is felt.

If we place in a tube filled with water, and hermetically closed by two corks, the extremities of two wires of the same metal which are in contact at the other extremity one with the summit, the other with the base of the pile, these ends, even when separated only by the space of a few lines, experience evident changes at the instant the extremities of the pile are touched; the wire in contact with that part of the pile composed of silver becomes covered with bulla of hydrogen gas; that which touches the extremity formed by zinc, becomes oxidized, or gives off oxygen gas. Fourcroy attributes this phenomenon to the decomposition of water by the Galvanic fluid, which abandons the oxygen to the metal that touches the positive extremity of the pile; then conducts the other gas invisibly to the end of the other wire there to be disengaged.

GALVANIC TROUGH.

This is a much more convenient apparatus. Plates of two metals, commonly zinc and copper, are fastened together, and cemented into a wooden trough, so as to form a number of cells; or earthen-

ware troughs with partitions being procured, the metals connected by a slips, are suspended over these, so that in each cell, except at the ends, there is a plate of each metal; then a diluted acid, (usually the sulphuric, nitric, or muriatic mixed with from twelve to twenty parts of water,) is poured into the trough. It is necessary that the metals be placed in the same order throughout, or one series will counteract another. The zinc end becomes negative, the copper positive; and the power is in proportion to the series: and several such troughs may be connected together, so as to form a most powerful apparatus.

From the number of experiments of Davy, many new and important facts have been established, and Galvanism has been found one of the most powerful agents in chemistry: by its influence, platina wire has been melted; gold, silver, copper, and most of the metals, have easily been burnt; the fixed alkalies, and many of the earths, have been made to appear as consisting of a metallic base, and oxygen; compound substances, which were before extremely difficult to decompose, are now, by the aid of Galvanism, easily resolved into their constituents.

According to Ritter the electricity of the positive pole

augments, while the negative diminishes, the actions of life. Tumefaction of parts is produced by the former; depression of the latter. The pulse of the hand, he says, held a few minutes in contact with the positive pole, is strengthened; that of the one in contact with the negative, is enfeebled: the former is accompanied with a sense of heat; the latter with of feeling a coldness. Objects appear to a positively electrified eye, larger, brighter, and red; while to one negatively electrified, they seem smaller, less distinct, and bluish,—colors indicating opposite extremities of the prismatic spectrum. The acid and alkaline tastes, when the tongue is acted on in succession by the two electricities, are well known, and have been ingeniously accounted for by Sir H. Davy, in his admirable Bakerian lectures. The smell of oxymuriatic acid, and of ammonia, are said by Ritter to be the opposite odors, excited by the two opposite poles; as a full body of sound and a sharp tone are the corresponding effects on the ears. These experiments require verification.

Consonant in some respects, though not in all, with these statements, are the doctrines taught by a London practitioner, experienced in the ad-

ministration of medical electricity. He affirms that the influence of the electrical fluid of our common machines, in the cure of diseases, may be referred to three distinct heads; first, the form of *radii*, when projected from a point positively electrified; secondly, that of a star, or the negative fire, concentrated on a brass ball; thirdly, the Leyden explosion. To each of these forms he assigns a specific action. The first acts as a sedative, allaying morbid activity; the second, as a stimulant; and the third has a deobstruent operation, in dispersing chronic tumors. An ample narrative of cases is given in confirmation of these general propositions. My own experience leads me to suppose, that the negative pole of a Voltaic battery gives more poignant sensations than the positive.

The most precise and interesting researches on the relation between Voltaic electricity and the phenomena of life, are those contained in Dr. Wilson Philip's *Dissertations in the Philosophical Transactions*, as well as in his experimental inquiry into the laws of the vital functions, more recently published.

In his earlier researches he endeavored to prove, that the circulation of the blood and

the action of the involuntary muscles, were independent of the nervous influence.

The eighth pair of nerves distributed to the stomach, and subservient to digestion, were divided by incisions in the neck of several living rabbits. After the operation, the parsley which they ate remained without alteration in their stomachs; and the animals, after evincing much difficulty of breathing, seemed to die of suffocation. But when in other rabbits, similarly treated, the Galvanic power, was transmitted along the nerve, below its section, to a disc of silver, placed closely in contact with the skin of the animal, opposite to the stomach, no difficulty of breathing occurred. The Voltaic action being kept up for twenty-six hours, the rabbits were then killed, and the parsley was found in as perfectly digested a state, as that in healthy rabbits fed at the same time; and their stomachs evolved the smell peculiar to that of a rabbit during digestion. These experiments were several times repeated similar results.

Hence it appears that the Galvanic energy is capable of supplying the place of the nervous influence, so that, while under it, the stomach, otherwise inactive, digests food as usual. I am not, however, willing to adopt the conclu-

sion drawn by its ingenious author, that the identity of Galvanic electricity and nervous influence is established by these experiments. They clearly show a remarkable analogy between these two powers, since the one may serve as a substitute for the other. It might possibly be urged by the anatomist, that as the stomach is supplied by twigs of other nerves, which communicate under the place of Dr. Philip's section of the *par vagum*, the Galvanic fluid may operate merely as a powerful stimulus, exciting those slender twigs to perform such an increase of action, as may compensate for the want of the principal nerve. The above experiments were repeated on dogs, with like results; the battery never being so strong as to occasion painful shocks.

The removal of dyspnœa, as stated above, led him to try Galvanism as a remedy in asthma. By transmitting its influence from the nape of the neck to the pit of the stomach, he gave decided relief in every one of twenty-two cases, of which four were in private practice, and eighteen in the Worcester Infirmary. The power employed varied from ten to twenty-five pairs.

The several inferences deduced by him from his multiplied experiments, are, that

Voltaic electricity is capable of effecting the formation of the secreted fluids, when applied to the blood in the same way in which the nervous influence is applied to it; and that it is capable of occasioning an evolution of caloric from arterial blood. When the lungs are deprived of the nervous influence, by which their function is impeded, and even destroyed, when digestion is interrupted, by withdrawing this influence from the stomach, these two vital functions are renewed by exposing them to the influence of a Galvanic trough. Hence, says he, Galvanism seems capable of performing all the functions of the nervous influence in the animal economy; but obviously it cannot excite the functions of animal life, unless when acting on parts endowed with the living principle.

Gallois, an eminent French physiologist, had endeavored to prove, that the motion of the heart depend entirely upon the spinal marrow, and immediately ceases when the spinal marrow is removed or destroyed. Dr. Philip appears to have refuted this notion by the following experiments. Rabbits were rendered insensible by a blow on the occiput; the spinal marrow and brain were then removed, and the respiration kept up by artificial

means; the motion of the heart, and the circulation, were carried on as usual. When spirit of wine or opium, was applied to the spinal marrow or brain, the rate of the circulation was accelerated.

A middle-sized, athletic, and extremely muscular man, about thirty years of age, was the subject of the following highly interesting experiments. He was suspended from the gallows nearly an hour, and made no convulsive struggle after he dropped; while a thief, executed along with him, was violently agitated for a considerable time. He was brought to the anatomical theatre of our university in about ten minutes after he was cut down. His face had a perfectly natural aspect, being neither livid nor tumefied; and there was no dislocation of his neck.

Dr. Jeffray, the distinguished professor of anatomy, having on the preceding day requested me (says Dr. Ure) to perform the Galvanic experiments, I sent to his theatre, with his view, next morning, my *minor* Voltaic battery, consisting of two hundred and seventy pairs of four inch plates, with wires of communication, and pointed metallic rods with insulating handles, for the more commodious application of the electric power. About five minutes before the

police officers arrival with the body, the battery was charged with a dilute nitro-sulphuric acid, which speedily brought it into a state of intense action. The dissections were skilfully executed by Mr. Marshal, under the superintendence of the professor.

Experiment 1.

A large incision was made into the nape of the neck, close below the occiput. The posterior half of the atlas vertebra was then removed by bone forceps, when the spinal marrow was brought into view. A profuse flow of liquid blood gushed from the wound, inundating the floor. A considerable incision was at the same time made in the left hip, through the great gluteal muscle, so as to bring the sciatic nerve into sight; and a small cut was made in the heel. From neither of these did any blood flow. The pointed rod connected with one end of the battery, was now placed in contact with the spinal marrow, while the other rod was applied to the sciatic nerve. Every muscle of the body was immediately agitated with convulsive movements, resembling a violent shuddering from cold. The left side was most powerfully convulsed at each renewal of the electric contact. On moving the second rod

from the hip to the heel, the knee being previously bent, the leg was thrown out with such violence as nearly to overturn one of the assistants, who in vain attempted to prevent its extension.

Experiment 2.

The left phrenic nerve was now laid bare at the outer edge of the sterno-thyroideus muscle, from three to four inches above the clavicle; the cutaneous incision having been made by the side of the sterno-cleido mastoideus. Since this nerve is distributed to the diaphragm, and since it communicates with the heart through the eighth pair, it was expected, by transmitting the Galvanic power along with it, that the respiratory process would be renewed. Accordingly, a small incision having been made under the cartilage of the seventh rib, the point of the one insulating rod was brought into contact with the great head of the diaphragm, while the other point was applied to the phrenic nerve in the neck. This muscle, the main agent of respiration, was instantly contracted, but with less force than was expected. Satisfied from ample experience on the living body, that more powerful effects can be produced in Galvanic excitation, by leaving the extreme communicating rods in close

contact with the parts to be operated on, while the electric chain or circuit is completed by running the end of the wires along the top of the plates in the last trough of either pole, the other wire being steadily immersed in the last cell of the opposite pole, I had immediate recourse to this method. The success of it was truly wonderful. Full, nay, laborious breathing, instantly commenced. The chest heaved, and fell; the belly was protruded, and again collapsed, with the relaxing and retiring diaphragm. This process was continued, without interruption, as long as I continued the electric discharges.

In the judgment of many scientific gentlemen who witnessed the scene, this respiratory experiment was perhaps the most striking ever made with a philosophical apparatus. Let it also be remembered that for full half an hour before this period, the body had been well nigh drained of its blood, and the spinal marrow severely lacerated. No pulsation could be perceived meanwhile at the heart or wrist; but it may be supposed, that but for the evacuation of the blood, the essential stimulus of that organ, this phenomenon might also have occurred.

Experiment 3.

The supra-orbital nerve was laid bare in the forehead, as it issues through the supra-ciliary foramen, in the eyebrow; the one conducting rod being applied to it, and the other to the heel, most extraordinary grimaces were exhibited every time that the electric discharges were made, by running the wire in my hand along the edges of the last trough, from the 220th to the 270th pair of plates; thus fifty shocks, each greater than the preceding one, were given in two seconds. Every muscle in his countenance was simultaneously thrown into fearful action; rage, horror, despair, anguish, and ghastly smiles, united their hideous expression in the murderer's face, surpassing far the wildest representations of a Fuseli or a Kean. At this period several of the spectators were forced to leave the apartment from terror or sickness, and one gentleman fainted.

Experiment 4.

The last galvanic experiment consisted in transmitting the electric power from the spinal marrow to the ulnar nerve, as it passes by the internal condyle at the elbow: the fingers now moved nimbly, like those of a violin performer; an assistant who tried to

close the fist, found the hand to open forcibly, in spite of his efforts. When the one rod was applied to a slight incision in the tip of the fore finger, the fist being previously clenched, that finger extended instantly; and from the convulsive agitation of the arm, he seemed to point to the different spectators, some of whom thought he had come to life.

About an hour was spent in these operations.

In deliberating on the above galvanic phenomena, we are almost willing to imagine, that if, without cutting into and wounding the spinal marrow and blood vessels of the neck, the pulmonary organs had been set a playing at first, (as I proposed) by electrifying the phrenic nerve, (which may be done without any dangerous incision,) there is a probability that life might have been restored. This event, however little desirable with a murderer, and perhaps contrary to law, would yet have been pardonable in one instance, as it would have been highly honorable and useful to science. From the accurate experiments of Dr. Philip it appears, that the action of the diaphragm and lungs is indispensable towards restoring the suspended action of the heart and great vessels, subservient to the circulation

of the blood. It is known that cases of death like lethargy, or suspended animation, from disease and accidents, have occurred, where life has returned, after longer interruption of its functions than in the subject of the preceeding experiments.

It is probable, when apparent death supervenes from suffocation with noxious gases, &c. and when there is no organic lesion, that a judiciously directed galvanic experiment will, if any thing will, restore the activity of the vital functions. The plans of administering voltaic electricity, hitherto pursued in such cases, are, in my humble apprehension, very defective. No advantages, we perceive, is like to accrue from passing electric discharges across the chest directly through the heart and lungs. On the principles so well developed by Dr. Philip, and now illustrated in Clydesdale's body, we should transmit along the channel of the nerves, that substitute for nervous influence, or that power which may perchance awaken its dormant faculties. Then, indeed, fair hopes may be formed of deriving extensive benefit from galvanism; and of raising this wonderful agent to its expected rank among the ministers of health and life to man.

I would, however, beg

leave to suggest another nervous channel, which I conceive to be a still readier and more powerful one to the action of the heart and lungs, than the phrenic nerve. If a longitudinal incision be made, as is frequently done for aneurism, through the integuments of the neck at the outer edge of the *sterno-mastoideus* muscle, about half way between the clavicle and angle of the lower jaw; then on turning over the edge of this muscle, we bring into view the throbbing carotid, on the outside of which, the *par vagum*, and great sympathetic nerve, lie together in one sheath. Here therefore, they may both be directly touched and pressed by a blunt metallic conductor. These nerves communicate directly, or indirectly with the phrenic; and the superficial nerve of the heart is sent off from the sympathetic.

Should, however, the phrenic nerve be taken, that of the left side is preferable of the two. From the position of the heart, the left phrenic differs a little in its course from the right. It passes over the pericardium, covering the apex of the heart.

While the point of one metallic conductor is applied to the nervous cords above described, the other knob ought to be firmly pressed against the side of the person, imme-

diately under the cartilage of the seventh rib. The skin should be moistened with a solution of common salt, or, what is better, a hot saturated solution of sal ammoniac, by which means, the electrical energy will be more effectually conveyed through the cuticle so as to complete the Voltaic chain.

To lay bare the nerves above described, requires, as I have stated, no formidable incision, nor does it demand more anatomical skill, or surgical dexterity, than every practitioner of the healing art ought to possess. We should always bear in mind, that the subject of experiment is at least insensible to pain; and that life is at stake, perhaps irrecoverably gone. And assuredly, if we place the risk and difficulty of the operations in competition with the blessings and glory consequent on success, they will weigh as nothing, with the intelligent and humane. It is possible, indeed, that two small brass knobs, covered with cloth moistened with solution of sal-ammoniac, pressed above and below, on the place of the nerve, and the diaphragmatic region, may suffice, without any surgical operation; it may first be tried.

Immersion of the body in cold water accelerates greatly the extinction of life arising

from suffocation; and hence less hopes need be entertained of recovering drowned persons after a considerable interval, than when the vital heat has been suffered to continue with little abatement. None of the ordinary practices judiciously enjoined by the humane society, should ever on such occasion be neglected. For it is surely culpable to spare any pains which may contribute, in the slightest degree, to recall the fleeting breath of man to its cherished mansion.

My attention has been again particularly directed to this interesting subject, by a very flattering letter which I received from the learned Secretary of the Royal Humane Society.

In the preceding account, I had accidentally omitted to state a very essential circumstance relative to the electrization of Clydesdale. The paper indeed was very rapidly written, at the busiest period of my public prelection, to be presented to the society, as a substitute for the essay of an absent friend, and was sent off to London the morning after it was read.

The positive pole or wire connected with the zinc end of the battery, was that which I applied to the nerve; and the negative, or that connected with the copper end, was that which I applied to the

muscles. This is a matter of primary importance as the following experiments will prove:

Prepare the posterior limbs of a frog for voltaic electrization, leaving the crural nerves connected, as usual, to a detached portion of the spine. When the excitability has become nearly exhausted, plunge the limbs into the water of one wine glass, and the crural nerves with their pendant portion of spine, into that of the other. The edges of the two glasses should be almost in contact. Then taking a rod of zinc in one hand, and a rod of silver, (or a silver teaspoon) in the other, plunge the former into the water of the limbs' glass, and the latter into that of the nerves' glass, without touching the frog itself, and gently strike the dry parts of the bright metals together. Feeble convulsive movements or mere twitching of the fibres, will be perceived at every contact. Reverse now the position of the metallic rods, that is, plunge the zinc into the nerves' glass, and the silver into the other. On renewing the contact of the dry surfaces of the metal now, very lively convulsions will take place; and if the limbs are skilfully disposed in a narrowish conical glass, they will probably spring out to some distance. This interesting ex-

periment may be agreeably varied in the following way, with an assistant operator; let the person seize, in the moist fingers of his left hand, the spine and nervous cords of the prepared frog; and in those of the right hand, a silver rod; and let the other person lay hold of one of the limbs with his right hand, while he holds a zinc rod in the moist fingers of the left. On making the metallic contact, feeble convulsive twitchings will be perceived as before. Holding still the frog as above, let them merely exchange the pieces of metal. On renewing the contact now, lively movements will take place, which become very conspicuous, if one limb be held nearly horizontal, while the other hangs freely down. At each touch of the voltaic pair, the drooping limb will start up, and strike the hand of the experimenter.

It is evident, therefore, that for the purposes of resuscitating dormant irritability of nerves, or contractility of their subordinate muscles, the positive pole must be applied to the former, and the negative to the latter."

Gargle, a wash for the throat.

Ganglion, a knot.

In anatomy, it is applied to a natural knot-like enlargement in the course of a nerve. In surgery, it is an encysted

tumor, formed in the sheath of a tendon, and containing a fluid like the white of an egg. It most frequently occurs on the back of the hand or foot.

Gas, an elastic, aeriform fluid. This term is applied to all permanently elastic fluids, simple, or compound, except the atmosphere to which the term *air* is appropriated.

Some of the gases exist in nature without the aid of art, and may therefore be collected; others, on the contrary, are only producible by artificial means.

All gases are combinations of certain substances, reduced to the gaseous form by the addition of caloric. It is, therefore, necessary to distinguish in every gas, the matter of heat which acted the part of a solvent, and the substance which forms the basis of the gas.

Gases are not contained in those substances from which we obtain them in the state of gas, but owe their formation to the expansive property of caloric.

FORMATION OF GASES.

The different forms under which bodies appear, depend upon a certain quantity of caloric, chemically combined with them. The very formation of gases corroborates this truth. Their production totally depends upon the combi-

nation of the particular substances with caloric; and though called permanently elastic, they are only so because we cannot so far reduce their temperature, as to dispose them to part with it; otherwise they would undoubtedly become fluid or solid.

Water, for instance, is a solid substance in all degrees below 32 degrees of Fahrenheit's scale; above this temperature it combines with caloric, and becomes a fluid. It retains its liquid state under the ordinary pressure of the atmosphere, till its temperature is augmented to 212 degrees. It then combines with a larger portion of caloric, and is converted, *apparently*, into gas, or at least into elastic vapor; in which state it would continue, if the temperature of our atmosphere was above 212 degrees. Gases are therefore solid substances, between the particles of which a repulsion is established by the quantity of caloric.

But as in the gaseous water or steam, the caloric is retained with but little force, on account of its quitting the water when the vapor is merely exposed to a lower temperature, we do not admit steam among the class of gasses, or permanently elastic aeriform fluids. In gases, caloric is united by

a very forcible affinity, and no diminution of temperature, or increase of pressure, that has ever yet been effected, can separate it from them. Thus the air of our atmosphere, in the most intense cold, or when very strongly compressed, still remains in the aeriform state; and hence is derived the essential character of gases, namely, *that they shall remain aeriform, under all variations of pressure and temperature.*

In the modern nomenclature, the name of every substance existing in the aeriform state, is derived from its supposed solid base; and the term gas is used to denote its existence in this state.

In order to illustrate the formation of gases, or to show in what manner caloric is combined with them, the following experiment may serve. Put into a retort, capable of holding half a pint of water, two ounces of muriate of soda (common salt;) pour on it half its weight of sulphuric acid, and apply the heat of a lamp; a great quantity of gas is produced, which might be collected and retained over mercury. But to serve the purpose of this experiment, let it pass through a glass receiver, having two openings, into one of which the neck of the retort passes, while, from the other, a bent tube proceeds,

which ends in a vessel of water. Before closing the apparatus, let a thermometer be included in the receiver, to show the temperature of the gas. It will be found that the mercury in the thermometer will rise only a few degrees ; whereas the water in the vessel which receives the bent tube, will soon become boiling hot.

Explanation.—Common salt consists of muriatic acid, united with soda ; on presenting sulphuric acid to this union, a decomposition takes place, especially when assisted by heat. The sulphuric acid unites by virtue of its greater affinity to the soda, and forms sulphate of soda, or glauber's salt ; the muriatic acid becomes therefore, disengaged, and takes the gaseous form in which it is capable of existing at the common temperature. To trace the caloric during this experiment, as was our object, we must remark, that it first flows from the lamp to the disengaged muriatic acid, and converts it into gas ; but the heat thus expended is chemically united, and therefore not appreciable by the thermometer. The caloric, however, is again evolved, when the muriatic acid gas is condensed by the water, with which it forms liquid muriatic acid.

In this experiment we there-

fore trace caloric in a chemical combination producing gas ; and from this union we again trace it in the condensation of the gas, producing sensible heat.

Such, in general, is the cause of the formation and fixation of the gases. It may be further observed that each of these fluids loses or suffers the disengagement of different quantities of heat, as it becomes more or less solid in its new combination, or as that combination is capable of retaining more or less specific heat.

The discovery of aeriform gaseous fluids has occasioned the necessity of some peculiar instruments, by means of which those substances may be conveniently collected and submitted to examination. The principal ones for that purpose are styled the *pneumatic apparatus*.

The *pneumatic trough* is made either of wood or strong sheet iron, tinned, japanned, or painted. A trough of about two feet long, sixteen inches wide, and fifteen high, has been found to be sufficient for most experiments. Two or three inches below its brim, a horizontal shelf is fastened, in dimension about half or one third part of the width of the trough. In this shelf are several holes ; these holes must be made in the centre of a

small excavation, shaped like a funnel, which is formed in the lower part of the shelf. This trough is filled with water sufficient to cover the shelf to the height of an inch.

The use of this shelf is to support receivers, jars, or bell-glasses, which, being previously filled with water, are placed invertedly, their open end turned down upon the above mentioned holes, thro' which the gases, conveyed there and directed by means of the funnel-shaped excavations, rise in the form of air-bubbles into the receiver.

When the gaseous fluids are capable of being absorbed by water, as is the case with some of them, the trough must be filled with mercury. The price and gravity of this fluid make it an object of convenience and economy, that the trough should be smaller than when water is used.

A mercurial trough is best cut in marble, free-stone, or a solid block of wood. A trough about twelve inches long, three inches wide, and four deep, is sufficient for all private experiments.

Method of collecting gases, and transferring them from one vessel to another.

If we are desirous of transmitting air from one vessel to another, it is necessary that the vessel destined to receive it be full of water, or some

fluid heavier than air. For that purpose, take a wide-mouthed bell-glass, or receiver; plunge it under the water in the trough in order to fill it; then raise it with the mouth downwards, and place it on the shelf of the trough, so as to cover one or more of the holes in it.

It will now be full of water, and continue so as long as the mouth remains below the surface of the fluid in the cistern; for, in this case, the water is sustained in the vessel by the pressure of the atmosphere, in the same manner as the mercury is sustained in the barometer. It may without difficulty be imagined, that if common air (or any other fluid resembling common air in lightness and elasticity,) be suffered to enter the inverted vessel filled with water, it will rise to the upper part, on account of its levity, and the surface of the water will subside. To exemplify this, take a glass, or any other vessel, in that state which is usually call *empty*, and plunge it into the water with its mouth downwards; scarce any of it will enter the glass, because its entrance is opposed by the elasticity of the included air; but if the vessel be turned with its mouth upwards, it immediately fills, and the air rises in bubbles to the surface.

Suppose this operation be

performed under one of the jars or receivers, which are filled with water, and placed upon the perforated shelf, the air will ascend in bubbles as before, but, instead of escaping, it will be caught in the upper part of the jar, and expel part of the water it contains.

In this manner we see that air may be emptied out of one vessel into another by a kind of inverted pouring, by which means it is made to ascend from the lower to the upper vessel. When the receiving vessel has a narrow neck, the air may be poured, in a similar manner, through an inverted funnel, inserted in its mouth.

If the air is to be transferred from a vessel that is stopped like a bottle, the bottle must be unstopped, with its orifice downwards in the water; and then inclined in such a manner that its neck may come under the perforated excavation of the shelf. The gas will escape from the bottle, and passing into the vessel destined to receive it, will ascend in it in the form of bubbles.

In whatever manner this operation is performed, the necessity of the excavation in the lower part of the shelf may be readily conceived. It is, as mentioned before, destined to collect the gas which

escapes from the vessel, and direct it in its passage towards the vessel adapted to receive it. Without this excavation, the gas, instead of proceeding to the place of its destination, would be dispersed and lost, unless the mouth of the receiving vessel were large.

The vessels, or receivers, for collecting the disengaged gases, should be glass cylinders, jars, or bell-glasses of various sizes; some of them should be open at both ends, others should be filled with necks at the top, ground perfectly level, in order that they may be stopped by ground flat pieces of metal, glass, slate, &c., others should be furnished with ground stoppers.—Some should be graduated into cubic inches, and subdivided into decimal or other equidistant parts. Besides these, common glass bottles, tumblers, &c. may be used.

Classification of gases.—

All the elastic aeriform fluids with which we are hitherto acquainted, are generally divided, by systematic writers, into two classes, namely: those that are *respirable* and *capable of maintaining combustion*, and those that are *not respirable* and *incapable of maintaining combustion*. This division, indeed, has its advantage, but the term *respirable*, in its physiological application, has been very dif-

ferently employed by different writers. Sometimes by the respirability of a gas has been meant its power of supporting life, when repeatedly applied to the blood in the lungs. At other times all gases have been considered respirable which were capable of introduction into the lungs by voluntary efforts, without any relation to their vitality. In the last case, the word respirable seems to us most properly employed, and in this sense it is here used.

Non-respirable gases are those which, when applied to the external organs of respiration, stimulate the muscles of the epiglottis in such a manner as to keep it perfectly close on the glottis; thus preventing the smallest particle of gas from entering into the bronchia, in spite of voluntary exertions.

Of respirable gases, or those which are capable of being taken into the lungs by voluntary efforts, only one has the power of uniformly supporting life, namely, atmospheric air; other gases when respired, sooner or later impair the health of the human constitution, or perhaps occasion death; but in different modes.

Some gases effect *no positive change* in the blood; animals immersed in it die of a disease produced by the privation of atmospheric air, anal-

ogous to that occasioned by their submersion in water.

Others again produce *some positive* changes in the blood, as appears from the experiments of Dr. Beddoes and Sir Humphrey Davy. They seem to render it incapable of supplying the nervous and muscular fibres with principles essential to sensibility and irritability. These gases, therefore, destroy animal life on a different principle."

Gastric, appertaining to the stomach.

Gastric juice, a fluid separated by the stomach. It is the principal agent in that part of the digestive process by which the food is converted into chyme.

Gastritis, inflammation of the stomach.

Gastro, names compounded with this word have some connexion with the stomach.

Gastrocele, a rupture or hernia of the stomach, in which it is protruded through the abdomen.

Gastrotomia, the operation of cutting open the belly.

Gelatin or jelly, an animal substance, soluble in water, but not in alcohol; capable of assuming a well known elastic or tremulous consistence, by cooling, when the water is not too abundant, and liquifiable again, by increasing its temperature. This last property remark-

ably distinguishes it from albumen, which becomes consistent by heat. It is precipitated in an insoluble form by tannin, and it is this action of tannin on gelatin which is the foundation of the art of tanning leather.

Jellies are very common in our kitchens; they may be extracted from all the parts of animals, by boiling them in water. Hot water dissolves a large quantity of this substance. Acids likewise dissolve them as do also the alkalies. When jelly has been extracted without long decoction, it possesses most of the characters of vegetable mucilage; but it is seldom obtained without a mixture of albumen.

The jelly of various animal substances is prepared for the use of seafaring persons under the name of portable soup.

The whole art of performing the operation consists in boiling the meat, and taking the scum off, as usual, until the soup possesses the requisite flavor. It is then suffered to cool, in order that the fat may be separated. In the next place, it is mixed with five or six whites of eggs, and slightly boiled. This operation serves to clarify the liquor by the removal of opaque particles, which unite with the white of the egg at the time it becomes solid by the heat, and are consequently removed a-

long with it. The liquor is then to be strained through flannel, and evaporated on the water-bath, to the consistence of very thick paste; after which it is spread, rather thin, upon a smooth stone, then cut into cakes, and lastly, dried in a stove, until it becomes brittle. These cakes may be kept four or five years, if defended from moisture. When intended to be used, nothing more is required to be done than to dissolve a sufficient quantity in boiling water, which by that means becomes converted into soup.

Genu, the knee.

Genus. By this term is understood, in natural history, a certain analogy of a number of species, or likeness to each other, making them agree together in number, figure, and situation of their parts; in such a manner, that they are easily distinguished from the species of any other genus, at least by some one article.

This is the proper and determinate sense of the word genus, whereby it forms a subdivision of any class, or order of natural beings, whether of the animal, vegetable, or mineral kingdoms, all agreeing in certain common and distinct characters.

Geology, a description of the structure of the earth.

Ginglymus, the hinge-like joint. It is a species of di-

arthrosis or moveable connexion of bones, which admits of flexion and extension, as the knee joint, &c.

Gizzard, the stomach of poultry.

Gland, an organic part of the body, compounded of blood-vessels, nerves, and absorbents, and destined for the secretion or alteration of some peculiar fluid.

Glandula, a small gland.

Glenoid, the name of articulate cavities of bones.

Globus, a ball.

Globose, rounded.

Glomer, a clue of thread. A term mostly applied to glands, as

Glomerate, means a gland which is formed of a glomer of blood vessels, having no cavity, but furnished with an excretory duct; as the lachrymal and mammary glands.

Gloss, names compounded with this word, belong to muscles, nerves, or vessels, from their being attached, or going to the tongue.

Glossa, the tongue.

Glottis, the upper or superior opening of the larynx at the bottom of the tongue.

Gluteal, belonging to the buttocks.

Glutia, the buttocks.

Glycyrrhiza glabra, liquorice.

Gomphosis, a species of immoveable connexion of bones

in which one bone is fixed in another, like a nail in a board, as the teeth in their sockets.

Granulation, in surgery it means the little grain-like fleshy bodies which form on the surfaces of ulcers and suppurating wounds, and serve both for filling up the cavities, and for bringing nearer together and uniting their sides.

Gravity, a term used by physical writers to denote the cause by which all bodies move towards each other, unless prevented by some other force or obstacle.

Gravity specific. The density of the matter of which any body is composed, compared to the density of another body, assumed as the standard. This standard is pure distilled water, at the temperature of 60 degrees Fahrenheit. To determine the specific gravity of a solid, we weigh it first in air, and then in water. In the latter case, it loses of its weight a quantity precisely equal to the weight of its own bulk of water; and hence, by comparing this weight, with its total weight, we find its specific gravity. The rule, therefore, is to divide the total weight by the loss of weight in water, and the quotient will be the specific gravity. If it be a liquid or a gas, we weigh it in some

vessel of known capacity, and then by dividing that weight by the weight of the same bulk of water, the quotient is, as before, the specific gravity.

Gutta, a drop.

Guttural, belonging to the throat.

Gymnastic. This term is applied to a method of curing diseases by exercise, or that part of physic which treats of the rules that are to be observed in all sorts of exercises, for the preservation of health. This is said to have been invented by one Herodicus, born at Salymbra, a city of Thrace; or as some say, at Leutini, in Sicily. He was first master of an academy where young gentlemen came to learn warlike and manly exercises; and observing them to be very healthful on that account, he made exercise become an art in reference to the recovering of men out of diseases, as well as preserving them from them, and called it *Gymnastic*, which he made a great part of his practice. But Hippocrates, who was his scholar, blames him sometimes for his excesses with this view. And Plato exclaims against him with some warmth, for enjoining his patients to walk from Athens to Megara, which is about twenty-five miles, and to come home on foot as they went, as

soon as they had but touched the walls of the city.

III

Hæmatemesis, a vomiting of blood from the stomach.

Hæmotosis, a hemorrhage or flux of blood.

Hæmoptysis, a spitting of blood.

Hæmorrhagia, a hemorrhage or flow of blood.

Hæmorrhoidal, the name of the vessels which are the seat of the hemorrhoids or piles.

Hæmorrhoids, or *hemorrhoids* the piles.

Halitus, a vapor.

Hallucinatio, an erroneous imagination.

Harmonia, harmony. A connexion of bones in which they are connected together by means of rough margins not dentiform; in this way most of the bones of the face are connected together.

Heat, animal. Respiration appears to be the principal or at least the most evident source of animal heat. The oxygen gas contained in the air which we breathe combining with the blood in the lungs, forms carbonic acid, in consequence of which an increase of heat and the red florid color are imparted to the blood.

This combination of the oxygen of the air with the car

bon of the blood is sufficient for the explanation of most of the phenomena presented by the production of animal heat; but there are several circumstances connected with the subject, which if real, could not be explained in this way. Authors worthy of credit have remarked, that in certain local diseases the temperature of the diseased place rises several degrees above that of the blood, taken at the left auricle. If this be so, the continual renewal of the arterial blood is not sufficient to account for this increase of heat. This second source of heat must belong to the nutritive phenomena which take place in the diseased part. There is nothing forced in this supposition; for most of the chemical combinations produce elevations of temperature, and it cannot be doubted that both in the secretions and in the nutrition, combinations of this sort take place in the organ.

Heat, absolute. This term is applied to the whole quantity of caloric existing in a body in chemical union.

Heat, sensible or free. If the heat which exists in any substance be from any cause forced in some degree to quit that substance, and to combine with those that surround it, then such heat is said to be free, or sensi-

ble, until the equilibrium is destroyed.

Heat, latent. When any body is in equilibrium with the bodies which surround it with respect to its heat, that quantity which it contains is not perceptible by any external sign, or organ of sense, and is termed combined caloric, or latent heat.

Helix, the external circle or border of the outer ear, that curls inwardly.

Helicis, is a term applied to those muscles which are connected with the helix.

Hemeralopia. A defect in the sight, which consists in being able to see in the day time, but not in the evening. It is a kind of imperfect periodical amaurosis, most commonly sympathetic with the stomach.

The disease is endemic in some countries, and epidemic, at certain seasons of the year, in others. At sunset objects appear to the patient as if covered with an ash colored veil, which gradually changes into a dense cloud, intervening between the eyes and the surrounding objects.

The pupil of the eye, both in the day and night time, is more dilated, and less moveable than it usually is in healthy eyes. The majority of such patients however, have the pupil more or less move-

able in the day time, and always expanded and motionless at night. When brought into a room faintly lighted by a candle, where all the bystanders can see tolerably well, they cannot discern at all, or in a very feeble manner, scarcely any one object; or they only find themselves able to distinguish light from darkness, and at moonlight their sight is still worse. At day-break they recover their sight, which continues perfect all the rest of the day till sunset.

Hemiopsia. A defect of vision, in which the patient sees the half, but not the whole of an object.

Hemicrania. A pain that affects only one side of the head. It is generally nervous or hysterical, sometimes bilious; and in both cases sometimes comes at a regular period, like an ague.

Hemiplegia. A paralytic affection of one side of the body.

Hepatic. Belonging to the liver.

Hepatitis. An inflammation of the liver.

Hermetic. In the language of the ancient chemists, Hermes was the father of chemistry, and the hermetic seal was the closing of the end of a glass vessel while in a state of fusion.

Hernia. A rupture.

Herpes. (From a Greek

word signifying to creep.) Tetter. An assemblage of numerous little ereeping ulcers, in clusters, itching very much, and difficult to heal, but terminating in furfuraceous scales.

Hiera picra, (holy bitter.) It is prepared by mixing one pound of socotorine aloes with three ounces of white canella.

Herpetic. Relating to herpes.

Hippocrates, usually called the father of physic, was born in the island of Cos, about 460 years before Christ. He is reckoned the 18th lineal descendant from Euseulapius, the profession of medicine having been hereditarily followed in that family, under whose direction the Coan school attained its high degree of eminence, and by the mother's side he is said to have descended from Hereules. Born with these advantages, and stimulated by the fame of his ancestors, he devoted himself zealously to the cultivation of the healing art. Not content with the empiric practice, which was derived from his predecessors, he studied under Herodius, who had invented the gymnastic medicine, as well as some other philosophers.

But he appears to have judged carefully for himself, and to have adopted only those

principles, which seemed founded in sound reason. He was thus enabled to throw light on the deductions of experience, and clear away the false theories with which medicine had been loaded by those who had no practical knowledge of diseases, and bring it into the true path of observation, under the guidance of reason. Hence the physicians of the rational or dogmatic sect always acknowledged him as their leader. The events of his life are involved in much obscurity and fable. But he appears to have traveled much, residing at different places for some time, and practising his profession there. He died at Larissa, in Thessaly, at a very advanced age, which is variously stated from 85 to 109 years. He left two sons, Thessalus and Draco, who followed the same profession, and a daughter, married to his favorite pupil Polybus, who arranged and published his works; and he formed many other disciples. He acquired a high reputation among his countrymen, which has descended to modern times; and his opinions have been respected as oracles, not only in the schools of medicine, but even in the courts of law. He has shared with Plato the title of divine; statutes and temples have been erected to his memory, and his altars covered

with incense like those of Esculapius himself. Indeed, the qualifications and duties required in a physician, were never more fully exemplified than in his conduct, or more eloquently described than by his pen. He is said to have admitted no one to his instructions without the solemnity of an oath, in which the chief obligations are, the most religious attentions to the advantages of the sick, the strictest chastity, and inviolable secrecy concerning matters which ought not to be divulged. Besides these characteristics, he displayed great simplicity, candor, and benevolence, with unwearied zeal, in investigating the progress and nature of disease, and in administering to their cure. The books attributed to him amount to 72; of which, however, many are considered spurious, and others have been much corrupted. The most esteemed, and generally admitted genuine, are the essay "On Air, Water, and Situation," the first and third books of "Epidemics," that on "Prognostics," the "Aphorisms," the treatise "On the Diet in acute Diseases," and that "On Wounds of the Head." He wrote in the Ionic dialect, in a pure but remarkably concise style. He was necessarily deficient in the knowledge of anatomy, as the dissection of

human bodies was not then allowed; whence his Physiology also is, in many respects, erroneous; but he in a great measure compensated this by unceasing observation of diseases, whereby he attained so much skill in pathology and therapeutics, that he has been regarded as the founder of medical science; and his opinions still influence the healing art in a considerable degree. He diligently investigated the several causes of diseases, but especially their symptoms, which enabled him readily to distinguish them from each other: and very few of those noticed by him are now unknown, mostly retaining even the same names. But he is more remarkably distinguished by his Prognostics, which have been comparatively little improved since, founded upon various appearances in the state of the patient, but especially upon the excretions. His attention seems to have been directed chiefly to these in consequence of a particular theory. He supposed that there are four humors in the body, blood, phlegm, yellow and black bile, having different degrees of heat or coldness, moisture or dryness, and that to certain changes in the quantity or quality of these, all diseases might be referred; and farther, that in acute disorders a concoction of the mor-

bid humors took place, followed by a critical discharge, which he believed to happen, especially on certain days. But he seems to have paid little, if any attention, to the state of the pulse. He advanced another opinion, which has since very generally prevailed, that there is a principle or power in the system, which he called *nature*, tending to the preservation of health, and the removal of disease. He therefore advised practitioners carefully to observe and promote the efforts of nature, at the same time correcting morbid states by their opposites, and endeavoring to bring back the fluids into their proper channels. The chief part of his treatment at first was a restriction of the diet; in very acute diseases merely allowing the mouth to be moistened occasionally for three or four days, and only a more plentiful dilution during a fortnight, provided the strength would bear it; afterward a more substantial diet was directed, but hardly any medicines except gentle emetics, and laxatives, or clysters. Where these means failed very active purgatives were employed, as hellebore, calaterium, &c., or sometimes the sudorific regimen, or garlic and other diuretics. He seems cautious in the use of narcotics, but occasionally had re-

course to some of the preparations of lead, copper, silver, and iron. He bled freely in cases of extreme pain or inflammation, sometimes opening two veins at once, so as to produce fainting; and also took blood often by cupping, but preferably from a remote part with a view of producing a revulsion. Where medicines fail, he recommends the knife, or even fire, as a last resource, and he advises trepanning in cases of violent headache. But he wishes the more difficult operations of surgery to be performed only by particular persons, who might thereby acquire more expertness.

Hippocratic. Relating to Hippocrates.

Homogeneous. Uniform, of a like kind or species, of the same quality. It is used in contradistinction to *heterogeneous*, in which case the parts are of different qualities.

Hordeum. Barley.

Horn. An animal substance chiefly membranous, composed of coagulated albumen, with a little gelatin, and about a half per cent. of phosphate of lime. The horns of the buck and hart are of a different nature, being intermediate between bone and horn.

Horripilation. A shuddering or a sense of creeping

in different parts of the body. A symptom of the approach of fever.

Humeral. Belonging to the humerus or arm.

Humerus. The arm from the shoulder to the elbow.

Humor vitreous. The vitreous humor of the eye, which takes its name from the resemblance to melted glass, is less dense than the crystalline, but more so than aqueous humor; it is very considerable in the human eye, and seems to be formed by the small arteries that are distributed in the cells of the *hyaloid membrane*; it is heavier than common water, slightly albuminous and saline.

Hyaloides. The hyaloid membrane or capsule which encloses the vitreous humor of the eye.

Hydarthrus. White swelling.

Hydatid. A very singular animal, formed like a bladder, and distended with an aqueous or watery fluid. These animals are sometimes formed in the natural cavities of the body, as the abdomen and ventricles of the brain, but more frequently in the liver, kidney, and lungs, where they produce diseased actions of those viscera. It is also the name of a tumor containing a watery fluid.

Hydragogue. Hydragogue medicines or cathartics, are those which have a particular power in producing watery discharges from the bowels.

Hydrargyrum. Mercury, or quicksilver.

Hydriodate. A salt consisting of the hydriodic acid, combined in a definite proportion with an oxide.

Hydrochloric acid. Muriatic acid; a compound of chlorine and hydrogen.

Hydrogen. The base of inflammable air.

Hydrogen is a substance which is not perceptible to our senses in a separate state, but its existence is not at all the less certain. For though we cannot exhibit it experimentally uncombined, we can pursue it while it passes out of one combination into another, we cannot, indeed, arrest it on its passage, but we never fail to discover it, at least if we use the proper chemical means when it presents itself to our notice in a new compound.

Hydrogen, as its name expresses, is one of the constituent elements of nature, from which it can alone be procured. Its existence was unknown till lately. It is plentifully distributed in nature, and is one of the ingredients in the varieties bitumen, oils, fat, ardent spirits, ether, and of animal and vegetable bod-

ies. It is a constituent part of all animal and vegetable acids, of ammonia, and various other compound gases.

It possesses so great an affinity for caloric, that it can only exist separately in the state of gas; it is consequently impossible to procure it in the concrete or liquid state, independent of combination.

Solid hydrogen, therefore, united to caloric and light, forms *hydrogen gas*.

Properties of hydrogen gas. This gas which was commonly called inflammable air, was discovered by Cavendish in the year 1768, or rather he first obtained it in a state of purity, and ascertained its more important properties, though it had been noticed long before. The famous philosophical candle attests the antiquity of this discovery.

Hydrogen gas, like oxygen gas, is a triple compound consisting of hydrogen, caloric, and light. It possesses all the mechanical properties of atmospheric air. It is not fitted for respiration; animals when obliged to breathe in it, die almost instantaneously. It is decomposed by living vegetables, and its basis becomes one of the constituents of oil, resin, &c. It is inflammable, and burns rapidly when kindled in contact with atmospheric air or oxygen gas; but all burn-

ing substances are immediately extinguished when immersed in it. It is therefore incapable of supporting combustion. It is not injurious to growing vegetables. Very few substances are capable of absorbing it; water absorbs it, but very sparingly. It is capable of dissolving carbon, sulphur, phosphorus, arsenic, and many other bodies. When its basis combines with that of oxygen gas, water is formed; with nitrogen it forms ammonia. It does not act on earthy substances.

Method of obtaining Hydrogen gas. This is done by decomposing water. For this purpose let sulphuric acid, previously diluted with four or five times its weight of water, be poured on iron-filings, or bits of zinc, in a small retort or gas bottle, called a pneumatic flask or proof; as soon as the diluted acid comes in contact with the metal, a violent effervescence takes place, and hydrogen gas escapes without external heat being applied. It may be collected in the usual manner over water, taking care to let a certain portion escape on account of the atmospheric air contained in the disengaging vessels.

The production of hydrogen gas in the above way is owing to the decomposition of water.

The iron, or zinc, when in contact with the water and sulphuric acid, has a greater affinity to oxygen than the hydrogen has; the oxygen therefore unites to it, and forms an oxide of that metal which is instantly attacked and dissolved by the acid; the other constituent part of the water, the hydrogen is set free, which by uniting with caloric, assumes the form of hydrogen gas. The oxygen is therefore the bond of union between the metal and the acid.

The hissing noise or effervescence, observable during the process, is owing to the rapid motion excited in the mixture by means of the great number of air-bubbles quickly disengaged and breaking at the surface of the fluid.

We see also in this case that two substances exert attraction, and are even capable of decomposing jointly a *third*, which neither of them is able to do singly, that is, if we present sulphuric acid alone, or iron or zinc alone, to water, they cannot detach the oxygen from the hydrogen of that fluid; but if both are applied, a decomposition is instantly effected. This experiment therefore proves that the agency of chemical affinity between two or more bodies may be dormant until it is called into action by the interposition of

another body, which frequently exerts no energy upon any of them in a separate state. Instances of this kind were formerly called *predisposing affinity*.

Hydrogen gas may also be obtained by decomposing water with red hot iron in the following manner :—

Let a gun-barrel having its touch-hole screwed up, pass through a furnace or large crucible perforated for that purpose, taking care to incline the barrel at the narrowest part; and just to its upper extremity a retort charged with water, and let the other extremity terminate in a tube introduced under a receiver in the pneumatic trough. When the apparatus is thus disposed, and well luted, bring the gun-barrel to a red heat, and when thoroughly red-hot make the water in the retort boil; the vapor, when passing through the red-hot tube, will yield hydrogen gas abundantly. In this experiment, the oxygen of the water combines with the iron at a red heat, so as to connect it into an oxide, and the caloric, applied combines with the hydrogen of the water and forms hydrogen gas. It is therefore the result of a double affinity,—that of the oxygen of the water for the metal, and that of its hydrogen for caloric.

Hydrogen gas combined

with carbon is frequently found in great abundance in mines and coal-pits, when it is sometimes generated suddenly, and becomes mixed with the atmospheric air of these subterraneous cavities.

If a lighted candle be bro't in, this mixture often explodes, and produces the most dreadful effects.

It is called by miners, *fire damps*. It generally forms a cloud in the upper part of the mine, on account of its levity, but does not mix there with atmospheric air, unless some agitation takes place. The miners frequently set fire to it with a candle, lying at the same time flat on their faces to escape the violence of the shock. An easier and safer method of cleaning the mine, is by leading a long tube thro' the shaft of it, to the ash-pit of a furnace; by this means the gas will be conducted to feed the fire.

Sir Humphrey Davy has invented a valuable instrument called a *safety lamp*, which will enable the miners to convey a light into such impure air without risk. This is founded on the important discovery made by him, that flame is incapable of passing through minute apertures in a metallic substance, which are yet previous to air; the reason of which appears to be, that the ignited gas or vapor

is so much cooled by the metal in its passage, as to cease being luminous.

Hydrothorax. Dropsy of the chest.

Hygeia. The goddess of health. One of the four daughters of Esculapius. She often accompanies her father in the monuments of him now remaining, and appears like a young woman, commonly holding a serpent in one hand, and a patera in the other. Sometimes the serpent drinks out of the patera; sometimes he twines about the whole body of the goddess.

Hygiene. Hygiesis. That part of the art of healing which treats of the diet and non-naturals of the sick.

Hygrometer. An instrument to measure the degrees of moisture in the atmosphere. It also means an infirm part of the body, affected by moisture of the atmosphere.

Hyo. Names compounded with this word belong to muscles which originate from, or are inserted into, or connected with, the os hyoides.

Hygrology. The doctrine of the fluids.

Hypercatharsis. An excessive purging from medicines.

Hypercrisis. A critical excretion above measure; as when a fever terminates in

a looseness, the humors may flow off faster than the strength can bear, and therefore it is to be checked.

Hypochlorosis. A slight degree of chlorosis.

Hypochondriac. Belonging to the hypochondria. Also, a person affected with lowness of spirits.

Hypochondriac regions.—The spaces in the abdomen that are under the cartilages of the spurious ribs on each side of the epigastrium.

Hypochondriasis. The hypochondriac affection; lowness of spirits, vapors, spleen, &c.

Hypogastrium. The region of the abdomen that reaches from above the pubes to within three fingers' breadth of the navel.

Hypogastric. Belonging to the hypogastrium.

Hypothesis. An opinion, or a system of general rules, founded partly on fact, but principally on conjecture. A theory explains every fact and every circumstance connected with it; an hypothesis explains only a certain number, leaving some unaccounted for, and others in opposition to it.

I

Ichor. A thin, watery, and acrid discharge.

Ichthyocolla. Insinglass, or fish glue.

Ide. This termination is used to express the new substance which is produced by the combination of oxygen, chlorine, or iodine, with each other, or with simple combustibles or metals, in proportions not forming an acid:—thus, oxygen combined with chlorine forms the *ox-ide* of chlorine; chlorine with sulphur forms the *chlor-ide* of sulphur; iodine with iron, the *iod-ide* of iron, &c.

Ideology. The doctrine or study of the understanding. Whatever be the number and the diversity of the phenomena which belong to human intelligence, however different they appear from the other phenomena of life, though they evidently depend on the soul, it is absolutely necessary to consider them as the result of the action of the brain, and to make no distinction between them and the other phenomena that depend on the actions of that organ. The functions of the brain are absolutely subject to the same laws as the other functions; they develop and go to decay in the progress of age; they are modified by habit, sex, temperament, and individual disposition; they become confused, weakened, or elevated in diseases; the physical injuries of the brain weaken or destroy them; in a

word, they are not susceptible of any explanation more than the other actions the organ; and setting aside all hypothetical ideas, they are capable of being studied only by observation and experience.

We must also be cautious in imagining that the study of the functions of the brain is more difficult than that of the other organs, and that it appertains peculiarly to metaphysics. By keeping close to observation, and avoiding carefully any theory or conjecture, this study becomes purely physiological, and perhaps it is easier than the most part of the other functions, on account of the facility which the phenomena can be produced and observed. The innumerable phenomena which form the intellect of man, are only modifications of the faculty of perception. If they are examined attentively, this truth which is well illustrated by modern metaphysicians, will be found very clear.

There are four principal modifications of the faculty of perception.

1st. *Sensibility*, or the action of the brain, by which we receive impressions, either from within or from without.

2d. The *Memory*, or the faculty of re-producing impressions, or sensations formerly received.

3d. The faculty of perceiv-

ing the relations which sensations have to each other, on the judgment.

4th. The *Desires*, or the *will*."

Idiopathic. Applied to any disease which does not depend on any other disease, in which respect it is opposed to a symptomatic disease, which is dependent on another.

Idiosyncrasy. A peculiarity of constitution, in which a person is affected by certain agents, which if applied to a hundred other persons, would produce no effect; thus some people cannot see a finger bleed without fainting, and thus violent inflammation is induced on the skin of some persons by substances that are perfectly harmless to others.

Ignis. Fire.

Ignis fatuus. A luminous appearance or flame, frequently seen in the night in country places, and called in England, *Will the wisp*, or *Jack with a lantern*. It seems to be mostly occasioned by the extrication of phosphorus from rotting leaves and other vegetable matters. It is probable that the motionless ignes fatui of Italy, which are seen nightly on the same spot, are produced by the slow combustion of sulphur, emitted through clefts and

apertures in the soil of that volcanic country.

Ileum. The last portion of the small intestines, about fifteen hands' breadth in length, which terminates at the valve of the *cæcum*.

Ilia. The small intestines. Also the part in which they are enclosed.

Iliac. Belonging to the ilium; an intestine so called.

Iliac passion. A violent vomiting in which the excrements are voided by the mouth.

Iliac region. The side of the abdomen between the ribs and hips.

Iliacus. Applied to muscles, regions, or diseases, which are situated near to, or connected with the parts about the ilia or flanks.

Ilium os. The haunch bone.

Imposthumous. Like an abscess.

Inanition. Inanition. Applied to the body or vessels, it means emptiness; applied to the mind, it means a defect of its powers.

Incantation. A way of curing diseases by charms, defended by Paracelsus, Helmont, and some other chemical enthusiasts.

Incineration. (From *incinero*, to reduce to ashes.) The combustion of vegetables and animal substances, for the purpose of obtaining their ashes, or fixed residue.

Incisor. The four front teeth of both jaws are called incisors, because they cut the food.

Index. (From *indico*, to point out.) The forefinger.

Indication. An indication is that which demonstrates in a disease what ought to be done. It is three-fold: preservative, which preserves health; curative, which expels a present disease; and vital, which respects the powers and reasons of diet.

Indigenous. Applied to diseases, plants, and other objects which are peculiar to any country.

Inflammable. Such bodies as burn with facility and flame in an increased temperature are called inflammable.

Influenza. (The Italian word for *influence*.) The disease is so named because it was supposed to be produced by a peculiar influence of the stars.

Inguen. The groin.

Inguinal. Appertaining to the groin.

Innominatus. Without a name. Some parts of the body are so called; thus the bones of the pelvis, which in childhood are three in number, and to which names were given, become one in the adult, which was without a name. Also an arte-

ry from the arch of the aorta, and the fifth pair of nerves, are thus termed, because they appear to have been forgotten by the older anatomists.

Inosculation. The running of the veins and arteries into one another, or the interunion of the extremities of the arteries and veins.

Insania. Insanity, or deranged intellect.

Inspiration. The act of drawing the air into the lungs.

Instinct. The natural propensity or disposition, operating without the aid of instruction or experience, by which living beings are constantly inclined and excited to fulfil the intentions of nature by the execution of those actions which are necessary for them.

These actions may be accomplished in two different modes, with a knowledge of the end, or without that knowledge. In the first mode, it is called enlightened instinct; in the second, blind instinct: the one is exclusively the gift of man, the other belongs to animals.

In every species of animated being nature has a double design to be fulfilled:—first, the preservation of the individual, and secondly the preservation of the species. Every animal fulfils this end in

its own way, and according to its organization; there are therefore as many different instincts as there are different species; and as the organization varies in individuals, instinct presents individual differences sometimes strongly marked. In man there are two sorts of instinct; the one depends on his animal organization, and is nearly the same as that of animals. The other kind of instinct, although depending on organization, springs more especially from the social state, inasmuch as it is not brought into action except where man enjoys the advantages of civilized society.

To the first, or animal instinct, belong hunger, thirst, the necessity of clothing, of a covering from the weather; the desire of agreeable sensations; the fear of pain and death; the desire to injure others if there is any danger to be feared from them, or any advantages to arise from hurting them; the venereal inclinations; the interest inspired by children; inclination to imitation; to live in society, which leads man to pass thro' the different degrees of civilization, &c. These different instinctive feelings incline him to concur in the established order of organized beings.

Of all animals, man is the one whose natural wants

the most numerous, and of the greatest variety; which is in proportion to the extent of his intelligence; if he had only these wants, he would always have a marked superiority over the animals.

When man, living in society, can easily provide for all the wants which we have mentioned, he has then time and powers of action more than his wants require; it is then that new wants arise; which may be called social wants; such is that of a lively perception of existence, a want which becomes more difficult the more it is satisfied, because the sensations become blunted by habit.

This want of vivid existence, added to the continually increasing feebleness of the sensations, causes a mechanical restlessness, vague desires, excited by the remembrance of vivid sensations formerly felt: in order to escape from this state, man is continually forced to change his object, or to overstrain sensations of the same kind. Thence arises an inconstancy which never permits our desires to rest, and a progression of desires, which always annihilated by enjoyment, and irritated by remembrance, proceed forward without end; then arises *ennui*, by which the civilized idler is incessantly tormented.

The want of vivid sensa-

tions is balanced by the love of repose and idleness in the opulent classes of society.— These contradictory feelings modify each other, and from their reciprocal re-action results the love of power, of consideration, of fortune, &c. which gives us the means of satisfying both.

These two instinctive sensations are not the only ones which spring from the social state; a crowd of others arise from it, equally real, though less important; besides, the natural wants become so changed as no longer to be known; hunger is often replaced by a capricious taste, the sexual desire by a feeling of quite another nature, &c.

The natural wants have a considerable influence upon those which arise from society; these in their turn modify the former; and if we add age, temperament, sex, &c. which tend to change every sort of want, we should find that this part of physiology would be hardly begun. We remark, however, that the social wants are necessarily attended with enlargement of the understanding; there is no comparison in regard to the capacity of the mind, between a man in the higher class of society, and a man whose physical powers are scarcely sufficient to provide for his natural wants.

Interosseous. (Interosseus; from *inter*, between, and *os*, a bone.) A name given to muscles, ligaments, &c. which are between bones.

Inversion. The state of being turned inside out.

Involucrum. (From *in*, and *valvo*, to wrap up; because parts are enclosed by it.) In general, it means a membrane which covers any part; in particular, it is a name given to the pericardium.

Irritability. The vis insita, or contractility of muscular fibres, or a property *peculiar* to muscles, by which they contract upon the application of certain stimuli, without a consciousness of action. This power may be seen in the tremulous

contraction of muscles when lacerated, or when entirely separated from the body.— Even when the body is dead to all appearance, and the nervous power is gone, this contractile power remains till the organization yields, and begins to be dissolved. It is by this inherent power that a cut muscle contracts, and leaves a gap; that a cut artery shrinks and grows stiff after death. This irritability of muscles is so far independent of nerves, and so little connected with feeling, which is the province of the nerves,

that upon stimulating any muscle by touching it with caustic, or irritating it with a sharp point, or driving the electric spark through it, or exciting with the metallic conductors, as those of silver or zinc, the muscle instantly contracts, although the nerve of that muscle be tied, or separated from all connexion with the system, and although the muscle itself may be separated from the body, and the creature have lost all sense of feeling.

Thus a muscle cut from a limb trembles and palpitates a long time after; the heart, separated from the body, contracts when irritated; the bowels, when torn from the body, continue their peristaltic motion, so as to roll upon the table, and only ceasing to answer to stimuli when they become stiff and cold; and too often, in the human body, the vis insita loses the exciting power of the nerves and then palsy ensues; or losing the government of the nerves, the vis insita, acting without the regulating power, falls into partial or general convulsions. Even in vegetables, as in the sensitive plant, this contractile power lives. Thence comes the distinction between the irritability of muscles, and the sensibility of nerves; for the irritability of muscles survives the animal, as when it

is active after death; survives the life of the part, or the feelings of the whole system, as in universal palsy, where the vital motions continue entire and perfect, and where the muscles, though not obedient to the will, are subject to irregular and violent actions; and it survives the connexion with the rest of the system, as when animals, very tenacious of life, are cut into parts; but *sensibility*, the property of the nerves, gives the various modifications of sense, as vision, hearing, and the rest; gives also the general sense of pleasure or pain, and makes the system, according to its various conditions, feel vigorous and healthy, or weary and low, and thus the eye feels, and the skin feels; but their appointed stimuli produce no emotions in these parts; they are sensible, but not irritable. The heart, the intestines, the urinary bladder, and all the muscles of voluntary motion, answer to stimuli with a quick and forcible contraction; and yet they hardly feel the stimuli by which these contractions are produced, or at least, they do not convey that feeling to the brain. There is no consciousness of present stimulus in those parts which are called into action by the impulse of the nerves, and at the command of the will: so that muscular parts have all the irrita-

ility of the system, with but little feeling, and that little owing to the nerves which enter into their substance ; while nerves have all the sensibility of the system, but no motion.

The discovery of this singular property belongs to our countryman, Glisson ; but Baron Haller must be considered as the first who clearly pointed out its existence, and proved it to be the cause of muscular motion.

The laws of irritability, according to Dr. Crichton, are,

1. After every action in an irritable part, a state of rest or cessation from motion, must take place before the irritable part can be again incited to action. If, by an act of volition, we throw any of our muscles into action, the action can only be continued for a certain space of time ; the muscle becomes relaxed, notwithstanding all our endeavors to the contrary, and remains a certain time in that relaxed state before it can be again thrown into action.

2. Each irritable part has a certain portion or quantity of the principle of irritability which is natural to it, part of which it loses during action, or from the application of stimuli.

3. By a process wholly unknown to us, it regains this lost quantity during its repose, or state of rest. In order to

express the different quantities of irritability in any part, we say that it is either more or less redundant, or more or less defective. It becomes redundant in a part when the stimuli which are calculated to act on that part are withdrawn, or withheld for a certain length of time, because then no action can take place ; while, on the other hand, the application of stimuli causes it to be exhausted, or to be deficient, not only by exciting action, but by some secret influence, the nature of which has not yet been detected ; for it is a circumstance extremely deserving of attention, that an irritable part, or body, may be suddenly deprived of its irritability by powerful stimuli, and yet no apparent muscular or vascular action takes place at the time.

A certain quantity of spirits, taken at once into the stomach, kills almost as instantaneously as lightning does ; the same thing may be observed of some poisons, as opium, distilled laurel water, &c.

4. Each irritable part has stimuli which are peculiar to it, and which are intended to support its natural action : thus if blood, which is the stimulus proper to the heart, and arteries, should by any accident get into the stomach, it produces sickness or vomit-

ing. If the gall, which is the natural stimulus to the ducts of the liver, the gall bladder, and the intestines, is by any accident effused into the cavity of the peritoneum, it excites too great action of the vessels of that part, and induces inflammation. The urine does not irritate the tender fabric of the kidneys, uretus, or bladder, except in such a degree as to preserve their healthy action; but if it be effused into the cellular membrane, it brings on such a violent action of the vessels of these parts, as to produce gangrene. Such stimuli are called habitual stimuli of parts.

5. Each irritable part differs from the rest in regard to the quantity of irritability which it possesses. This law explains to us the reason of the great diversity which we observe in the action of various irritable parts; thus, the muscles of voluntary motion can remain a long time in a state of action, and if it be continued as long as possible, another considerable portion of time is required before the lost irritability can be regained; but the heart and arteries have a more short and sudden action, and their state of rest is equally so. The circular muscles of the intestines have also a quick action and short rest. The urinary bladder does not fully regain the irri-

tability it loses during its contraction, for a considerable space of time; the vessels which separate the menstrual evacuations, act in general for three or four days, and do not regain the irritability they lose for a lunar month.

6. All stimuli produce action in proportion to their irritating powers. As a person approaches his hand to the fire it glows with heat in consequence of the increased action of all its vessels; approach the hand still nearer, and the action will soon be so much increased as to occasion redness and pain; by longer continuance, active inflammation takes place, and the part finally loses its irritability, and a sphacelus or gangrene ensues.

7. Every stimulus acts in an inverse ratio, to the frequency of its application. A small quantity of spirits taken into the stomach increases the action of its muscular coat, and also of its various vessels, so that digestion is thereby facilitated. If the same quantity, however, be taken frequently, it loses its effect. In order to produce the same effect as at first, a larger quantity is necessary; and hence the origin and progress of dram-drinking.

8. The more the irritability of a part is accumulated, the more is that part disposed to be acted upon; and it is for

this reason that the activity of all animals while in perfect health, is much livelier in the morning than at any other part of the day ; for during the night the irritability of the whole frame and especially that of the muscles of voluntary action is re-accumulated. The same law explains why digestion goes on more rapidly the first hour after food is swallowed than at other time ; and it also accounts for the great danger that accrues to a famished person upon first taking food.

9. If the stimuli which keep up the action of any irritable body be withdrawn for too great a length of time, that process on which the formation of the principle depends is gradually diminished, and at last, entirely destroyed. When the irritability of the system is too quickly exhausted by heat, as is the case in certain warm climates, the application of cold invigorates the frame, because cold is a mere diminution of the overplus of that stimulus which was causing the rapid consumption of the principle.— Under such or similar circumstances therefore, cold is a tonic remedy ; but if in a cold climate, a person were to go into a cold bath, and not soon return into a warmer atmosphere, life would be destroyed just in the same manner as

many poor people who have no comfortable dwellings are often destroyed, from being too long exposed to the cold in winter. Upon the first application of cold the irritability is accumulated, and the muscular system is therefore exposed to great action ; but after a certain time all action is so much diminished, the process, whatever it be, on which the formation of the irritable principle depends, is entirely lost.

Irritation. The action produced by stimulus.

Issue. An artificial ulcer made by cutting a portion of the skin, and burying a pea or some other substance in it, so as to produce a discharge of matter.

Itis. From the time of Boerhaave, visceral inflammations have been generally distinguished by anatomical terms derived from the organ affected with the Greek term *itis* added to it as a suffix, as *carditis*, &c.

Itis is derived from a Greek word which signifies “violent or impetuous action.” When this term, therefore, is added to the genitive case of the Greek name of an organ, it means inflammation of that organ: hence hepatitis, nephritis, gastritis, and carditis, mean inflammation of the liver, kidney, stomach and heart.

Ivory. The tusk or tooth of defence of the male elephant. It is an intermediate substance between bone and horn.

J

Jecur. A name for the liver.

Jejunum. The second portion of the small intestines. So called because it is mostly found empty.

Jesuit's bark. A name of the peruvian bark because it was first introduced into Europe by Father de Lugo, a Jesuit.

Judgment. The judgment is the most important of the intellectual faculties.—

We acquire all our knowledge by this faculty; without it our life would be merely vegetative; we would have no idea either of the existence of other bodies, or of our own; for these two sorts of notions, like our knowledge, are produced by our faculty of judging.

To judge is to establish a relation between two ideas, or between two groups of ideas. When I judge of the goodness of a work, I feel that the idea of goodness belongs to the book which I have read; I establish a relation, I form to myself an idea of a different kind from that which arises from sensibility and memory.

A continuation of judgments linked together form

an inference, or process of reasoning. We see how important it is to form correct judgments, that is, to establish only those relations which really exist. If I judge that a poisonous substance is salutary, I am in danger of losing my life; my false judgment is therefore hurtful. It is the same with all those of the same kind. Almost all the misfortunes which oppress man in a moral sense, arise from errors of judgment; bad conduct, vices and crimes springing from false judgment.

The science of logic has for its end the teaching of just reasoning: but pure judgment or good sense, and false judgment, or *wrong headedness*, depend on organization. We cannot change in this respect; we must remain as nature has made us. There are men endowed with the precious gift of finding relations of things which have never been perceived before. If these relations are very important, and beneficial to humanity, the authors are men of genius: if the relations are of less importance, they are considered men of wit or imagination. Men differ principally by their manner of feeling, different relations, or of judging. The judgment seems to be injured by an extreme vivacity of sensations; hence we see that faculty be-

comes more perfect with age.

—*Magendie's Physiology.*

Jugular. Belonging to the throat.

Jugulum. (From *jugum*, a yoke; because the yoke is fastened to this part.)

The throat or anterior part of the neck.

Juvantia. (From *juvo*, to assist.) Whatever assists in relieving a disease.

K

Kali, the vegetable alkali *Kin-ic Acid*, an acid obtained from cinchonia.

Kino. Gum of the kino tree.

L

Labium, lip.

Labyrinth, that part of the internal ear which is behind the cavity of the tympanum.

Lac, milk.

Lachryma, a tear.

Lachrymal, belonging to tears

Lacteal, a vessel that carries a milk-like fluid.

Lacuna, a channel.

Lambdoidal, the occipital suture, so called because it is shaped like the letter A.

Laryngotomy, the operation of cutting into the larynx.

Larynx, a cartilaginous cavity, situated behind the tongue, in the anterior part of the fauces.

Lateral, the side.

Lateritious, like brick.

Laudanum, (from *laus*, or laud; praise) so named

from its valuable, or praiseworthy qualities.

Laurus, praise.

Leech, a genus of insects.

Lenitive, gently purgative.

Lens; one of the humors of the eye.

Lepra, the leprosy.

Lethargy, forgetfulness, a heavy and constant sleep, or disposition to sleep.

Leucorrhœa, whites; fluor albus.

Levator, to lift up.

Licenteria, see diarrhœa.

Life, the mode of existence peculiar to living beings.

Ligament a strong cord or membrane to bind, or tie together.

Ligneus, woody.

Linea Alba, a white line that extends from the lower end of the sternum, to the navel thence to the pubes.

Lingua, the tongue.

Liniment, an oily substance of a mediate consistence between an ointment and oil.

Litharge, an oxide of lead, in an imperfect state of vitrification.

Lithiasis, a stone.

Lithic, relating to stone.

Lithology, discourse or treatise on stones.

Lithontriptic, medicine that has the power to dissolve the stone in the bladder.

Lithotomy, the operation of cutting into the bladder to extract a stone.

Local, belonging to a part and not the whole.

Longissimus, the longest.

Lotion, a wash.

Lumbago, a rhumatic affection of the muscles about the loins.

Luna, the moon.

Luxation, to put out of joint.

Lymph, the liquid contained in the lymphatic vessels.

Lytta, cantharides fly.

III

M. By this the doctors mean, when it follows, chips, herbs, shavings, &c. that you must take a handful; and when *M.* follows the direction of several ingredients, thus *m. f. haust.* mix and let a draught be made.

Maceration, to soften by water.

Magnesia, the name of one of the primitive earths.

Magnetism, the property which iron possesses of attracting or repelling other iron; the similar poles of magnets repel, but opposite poles attract each other.

Magnus, large.

Malleability, the property that some metals have of being extended under the hammer.

Man, a compound of solids, fluids, and a vital principal, and distinguished from other animals by the possession of a soul.

Mania, raving or furious madness.

Marasmus, to grow lean, emaciation.

Marcores, the same.

Mastication, chewing.

Mater, signifies mother; a name of two of the membranes of the brain.

Materia Medica, a general class of substances, which are used in the cure of diseases.

Maxillare Inferius, lower jaw bone.

Maxillaris, the jaw.

Meatus, an opening that leads to a canal or duct.

Median, between.

Mediastinum, the membranous septum, formed by the duplicature of the pleura that divides the cavity of the chest into two parts.

Medicamentum, to heal, a name frequently given to quack medicines.

Meditullium, the middle.

Medulla, marrow.

Medullary, like unto marrow.

Mel, honey.

Membrane, the various kinds of the body.

Menorrhagia, flooding, or immoderate flow of the menses.

Menstruation, the periodical courses of women.

Mesentery, a duplicature of the peritoneum, which sustains the intestines, and supports and conducts with

- safety the blood vessels, lacteals, and nerves, serves to fix the glands, and give an external coat to the intestines.
- Metastasis*, to change, to translate, the translation of a disease from one place to another.
- Miasma*, pollution, corruption, general defilement, &c.
- Minimum*, the sixtieth part of a fluid dram, about a drop.
- Mistiura*, a mixture.
- Mollities*, a softness of the bones, or nails.
- Morbus*, a disease.
- Morbid*, diseased.
- Morphia*, or *Morphine*, a new vegetable alkali extracted from opium.
- Mucilage*, gum dissolved in water.
- Mucus*, the discharge or excretion from the nose, throat, &c.
- Mumps*, an inflammation of the parotid gland.
- Murias*, salt.
- Muriate of Soda*, common salt.
- Muriatic*, belonging to sea salt.
- Muriatic acid*, spirit of salt.
- Muscle*, a distinct portion of flesh, which by contracting itself is capable of performing a motion.
- Musk*, an unctuous substance obtained from the *Moschus Moschiferus*, a ruminating animal resembling the antelope.
- Mulitas*, dumbness.
- Myology*, doctrine of the muscles.
- Mystax*, the beard upon the upper lip.
- N**
- N.* in prescriptions stands for number.
- Nevus*, a natural mark or blemish.
- Naphtha*, a native combustible liquid of a yellowish white color, perfectly fluid and shining.
- Narcotic*, a medicine that has the power of procuring sleep.
- Nascale*, a wood or cotton pessary for the nose.
- Nasalis*, appertaining to the nose.
- Naris*, the nostril.
- Nasus*, the nose.
- Natron*, (so called from *Natron* a lake in Judea in which it was produced) a name formerly given to the alkali, now called soda.
- Nausea*, an inclination to vomit without effecting it.
- Nebula*, a cloudy spot in the cornea of the eye.
- Necrosis*, strictly means mortification, but is confined by surgeons to the death of the bones.
- Nectar*, a wine made of honey.
- Negro Cachexy*, a propensity for eating earth among

the negroes in the W. Indies and Africa.

Nephralgia, pain in the kidney.

Nephritic, belonging to the kidney.

Nephritis, inflammation of the kidney.

Nerve, long, white cords that arise from the brain, and marrow in the spine (back bone), and that serve for sensation.

Nervine, that which relieves disorders of the nerves.

Neurologia, pain in a nerve.

Neurology, the doctrine of the nerves.

Neurasis, nervous diseases.

Niger, black.

Nitrate, a salt formed by the union of nitric acid with salifiable bases.

Nitre, salt petre.

Nitrate of Potash, nitre.

Nodus or Node, a swelling upon the bone.

Noli Me Tangere, (not me to touch, or touch me not) a species of herpes affecting the skin and cartilages of the nose, it is very difficult to cure, and so very sensible that the patient cannot bear the slightest touch.

Nosology, the doctrine of the names of diseases, or their arrangements in classes, orders, genera, species, &c., &c.

In this work I have studied no particular arrangement,

considering it a matter of but little, if *any* consequence.—

The nosological arrangements of authors are numerous, and they vary so much, that an observer would readily see that they are arbitrary, and would be led to doubt their necessity, if not their utility.

My only object in giving the following arrangement is, to give the reader a perfect idea of nosology. The system is that of

DR. THOMAS.

IN WHICH

He has arranged

THE

DISEASES INTO

CLASSES AND ORDERS ;

AND HAS GIVEN

The Explanation

AND

Derivation of their names :

CLASS 1.

Pyrexia, febrile diseases ;
from fire and habit.

ORDER 1.

Febres, or Fevers.

Febris Intermittens, intermittent fever.

Febris Remittens, remittent fever.

Synochus, *to continue*, simple continued fever.

Synocha ; inflammatory fever.

Typhus Mitior ; from stupor ;
low or nervous fever.

Typhus Gravior, from do. malignant or putrid fever.

Typhus Icterodes; from stupor, and icterus; yellow fever.

ORDER II.

Phlegmasia, inflammations; from to burn.

Phlegmon, phlegmonous inflammations.

Erysipelas, erysipelatus inflammation; from to draw, and adjoining: named from the neighboring parts being affected by the eruption.

Phrenitis, inflammation of the brain and its membranes, from a phrenzy, a distraction.

Ophthalmia, inflammation of the eye.

Otitis; inflammation of the ear.

Cynanche Tonsillaris, inflammatory sore throat; from a dog, and to suffocate.

Do. Parotidia; mumps.

Do. Maligna; putrid or ulcerated throat.

Do. Trachealis, the croup.

Do. Pharyngea, inflammation of the pharynx.

Pleuritis; pleurisy, an inflammation of the membrane that lines the lungs.

Pneumonia; inflammation of the lungs, peripneumony.

Pneumonia Notha; spurious peripneumony.

Gastritis; inflammation of the stomach.

Enteritis; inflammation of

the intestines, from an intestine.

Hepatitis, do. of the liver.

Splenitis; do. of the spleen.

Nephritis; do. of the kidney.

Cystitis; do. of the bladder.

Podagra; gout, from the foot and to seize.

Rheumatismus; rheumatism, to be affected with defluxions.

ORDER III.

Exanthemata; eruptive fevers, to effloresce.

Variola; the small pox, from the skin being changed in color, or disfigured.

Variola Vaccina; cow pox.

Varicella; chicken pox.

Rubeola; the measles, from rubio, to become red.

Scarlatina; scarlet fever.

Pestis; plague.

Miliaris; miliary fever.

Pemphigus; vesicular eruption.

Urticaria; nettle rash, from *urtica*, a nettle.

ORDER IV.

Hemorrhagia; involuntary discharge of blood.

Epistaxis; bleeding from the nose.

Hemoptysis; spitting of blood.

Hematemesi; vomiting of blood.

Hematuria; bloody urine.

Menorrhagia; immoderate flow of the menses.

Hemorrhoids; piles, from blood, and to flow.

ORDER V.

Profluvia; fluxes with pyrexia, from profluo, to run down.

Catarrhus, catarrh, to flow down.

Dysenteria; dysentery, from bad, intestine, and to flow.

CLASS II.

Neuroses; nervous diseases.

ORDER I.

Comata; soporose disease, from a propensity to sleep.

Apoplexia; apoplexy, to strike down.

Paralysis; palsy.

ORDER II.

Adynamia; defect of vital powers.

Syncope; fainting.

Vertigo; giddiness.

Dyspepsia; indigestion.

Hypochondriasis; hypochondriac affections.

ORDER III.

Spasmi; spasmodic diseases.

Hysteria; hysteric diseases.

Epilepsia; épilepsy.

Chorea Sancti Viti; St. Vitus's Dance.

Risus Sardonicus; sardonic or convulsive laughter.

Tetanus; cramp.

Singultus; hiccup, or convulsive motion of the diaphragm and stomach.

Pertussis; whooping cough.

Pyrosis; water brash.

Angina Pectoris; syncope anginosa.

Palpitatio; palpitation of the heart.

Ashma.

Hydrophobia; (canine madness), fear of water.

Colica; colic.

Colica Pictonum; dry belly ache.

Cholera Morbus; vomiting and purging.

Diarrhea; purging.

Diabetes; excessive discharge of urine.

ORDER IV.

Vesania; mental diseases.

Mania; madness.

Incubus; nightmare.

CLASS III.

Cachexia; cachectic diseases.

ORDER I.

Marcores; universal emaciation.

Atrophia; Atrophy.

Phthisis; pulmonary consumption.

Cachexia Africana; negro cachexy.

Aptha Chronica; chronic thrush.

ORDER II.

Intumescencia; general swellings.

Polysarchia; corpulency.

Emphsema, from a Greek word signifying to inflate.

Tympanites : tympany, to sound like a drum.

Hydrops ; dropsy.

Anasarca, dropsy of the cellular membrane.

Ascites : dropsy of the belly.

Ascites Ovarii : dropsy of the ovarium.

Hydatids : water contained in membranous bags.

Hydrocele, dropsy of the tunica vaginalis testes.

Hydrocephalus : dropsy in the head.

Hydrothorax : dropsy of the chest.

Rachitis : rickets.

ORDER III.

Impetigines : Cutaneous diseases.

Scrofula : King's evil.

Mesenterii Glandula Morbosa ; diseased mesenteric glands.

Syphilis : venereal disease.

Sibbens : or sivvens.

Frambesia ; yaws.

Elephantiasis ; leg swelled like an elephant's.

Lepra ; leprosy.

Plica Polonica ; plaited hair.

Scorbutus ; scurvy.

Icterus ; jaundice.

CLASS IV.

Locales, local diseases.

ORDER I.

Dyesthesia ; diseases of the senses.

Nyctalopia ; night blindness.

Amaurosis ; gutta serena.

Paracusis ; deafness.

ORDER II.

Increased Appetite.

Dysorexia ; depraved appetites.

Bulima ; canine appetite.

Furor Uterinus ; nymphomania.

Defective Appetites.

Anorexia ; loss of appetite.

Anaphrodisia ; impotence.

ORDER. III.

Dyscinesia ; motion impeded, from an imperfection of the organ.

Strabismus ; squinting.

ORDER IV.

Apocenses ; increased discharges.

Ephidrosis ; violent and morbid perspiration.

Encuresis ; incontinence of urine.

Genorrhoea Dormientum ; involuntary emission of semen during sleep.

Leucorrhoea ; whites.

ORDER V.

Epischeses ; obstructions.

Obstipatio ; constipation or costiveness.

Ischuria ; suppression of urine.

Dysuria ; difficulty of voiding urine.

Amenorrhoea ; partial or total obstruction of the menses from other causes than pregnancy.

Chlorosis; retention of the menses or green sickness.

Amenorrhœa Suppressionis; suppressed menses.

Amenorrhœa Difficillis; difficult and painful menstruation.

ORDER VI.

Tumores; tumors.

Carcinoma; cancer.

Fungus Hematodes; medullary sarcoma.

Bronchocele; Derbyshire neck.

Dracunculus; Guinea worm.

ORDER VII.

Dolorosi; painful affections without fever.

Cephalalgia; headache.

Odontalgia; toothache.

Faciei Morbus Nervorum.

Crucians; tic douloureux.

Gastrodynia; pain the stomach.

Luxatio; sprain.

Calculus; stone in the bladder and gravel.

ORDER VIII.

Dialysis, solutions, or discontinuity of parts.

Ulcus; ulcer.

Vulnus ex Ustione factum; scalds and burns.

Herpes; tetters.

Tinea Capitis; scald head.

Psora; itch.

Impetigo; ring worm.

Gutta Rosea; pimples face.

Uligre; an insect resembling a flea.

Pernio; Chilblains.

DISEASES NOT REFERABLE TO ANY PARTICULAR CLASS.

Vermes; worms.

Venena; poisons.

Animatio suspensa; suspended animation.

Gelatus; frost bitten.

Diseases of the pregnant state.

Convulsiones, convulsions.

Abortio; abortions and floodings.

Diseases of the Puerperal state.

Febris Lactea; milk fever.

Inflammatio Mammæ; tumor and inflammation of the breast.

Papilla Excoriata; excoriated nipples.

Erptiones Millaria; Miliary eruptions.

Phlegmasia Dolens; painful intumescence of the lower extremity.

Hysteritis; inflammation of the womb.

Peritonitis, inflammation of the peritoneum.

Febris Puerperarum; puerperal, or child bed fever.

Prolapsus Uteri.

Diseases of Infants.

Asphyxia; apparent cessation of life.

Infantum Color Lividus; black and livid color of new born children.

Meconii Retentio; retention of the meconium.

Icterus Infantum; yellowgum.

Excoriationes et Ulcerationes; excoriations and ulcerations. Singultus.

Erysipelas Infantile.

Eruptions; eruptions.

Formina; gripes from acidities and flatulency.

Vomitus; vomiting.

Diarrhea; purging.

Trismus; locked jaw.

Febris Remittens.

Aphtha; thrush.

Prolapsus ani; falling of the fundament.

Atrophia Ablactatorum; weaning brash.

Ophthalmia Purulenta; purulent inflammation of the eyes.

Dentition; teething.

Convulsiones.

Syphilis.

Nostrum, our own; applied by quacks, very appropriately to medicines of their own preparation.

Nucleus, a kernel.

Nutrition, nourish.

Nycotalopia, night blindness.



Obesity, see Polysarcar.

Obliquus, Oblique, deviating from a right line.

Obstetric, belonging to midwifery.

Obstipatio, to stop up.

Obturator, that which covers up.

Obtusius, Obtuse, blunt.

Occiput, the back part of the head.

Occipital, belonging to the back part of the head.

Occult, hidden, a term used by writers that do not themselves clearly understand what they attempt to explain.

Occulus, the eye.

Odontagra, tooth-ache.

Odontalgia, the same.

Odontoid, shaped like a tooth.

Odour, smell.

Economy, the conduct of nature in unerring order, order, regularity.

Edema, to swell.

Esophagus, the gullet.

Officinal, any medicine directed by the colleges of physicians to be kept in the shops, is so termed.

Olecranon, the elbow, or process of the ulna upon which a person leans.

Oleum, oil.

Oleum Ricini, castor oil.

Oleum Oragani oil of origanum, &c. &c.

Olfactory, belonging to the organ, or sense of smelling.

Olfactory Nerve, the first pair of nerves, so termed because they are the organs of smelling.

Olivaris, resembling the olive.

Omagra, the gout in the shoulder.

Omentum, Epiploon, the caul.

Onro, the shoulder.

Omphalocele, a rupture of the navel, umbilical hernia.

Opacity, the faculty of obstructing the passage of light.

Ophthalmia, an inflammation of the membranes of the eye or of the whole bulb of the eye.

Ophthalmic, belonging to the eye.

Opiate, having an effect like opium, the effect of opium.

Opium, the inspissated juice of the poppy.

Opodeldoc, a term of no original meaning, now confined camphorated soap liniment.

Opponeus, opposing.

Oppression, catalepsy, or any pressure upon the brain.

Optic, to see, relating to the eye.

Optic Nerves, the organs of sight.

Orbicularis, like a ring.

Orbit, the two cavities under the forehead in which the eyes are situated.

Organ, a part of the body capable of performing perfect action.

Organic, belonging to an organ.

Ornithology, the history of birds.

Ossiculum, a little bone.

Ossification, the formation of bone.

Osteocopus, a violent fixed pain in a bone.

Osteogeny, the growth of bones.

Osteology, doctrine of the bones.

Otalgia, the ear-ache.

Otitis, inflammation of the ear.

Ovum, an egg.

Oxidation, the process of converting metals and other substances into oxides, by combining with them a certain portion of oxygen.

Oxide, a substance combined with oxygen, without being in the state of an acid.

Oxygen, from acid, and to generate, because it is the generation of acidity.

Oxymel, honey and vinegar, boiled to a syrup.

P

P. part, a handful.

Pain, unpleasant sensation.

Palatum, Palate, the roof of the mouth.

Palliative, to dissemble, medicines given only to afford temporary relief in diseases.

Palmaris, belonging to the hand.

Palmos, a palpitation of the heart.

Palpebra, the eyelids.

Palpitatio, palpitation, convulsive motion.

Palsy, paralysis.

Panacea, cure all, a name given by the ancients to such medicines as they conceived, or wished to make people believe, would cure all diseases.

Panada, bread boiled in water to the consistence of pap.

Pancreas, the sweat bread, being a glandular viscus of

- the abdomen of a long figure, compared to a dogs tongue, it lies in the epigastric region under the stomach.
- Pancreatic*, belonging to the pancreas.
- Pandemic*, a disease is so called that attacks all or a great many persons in the same place and at the same time.
- Panis*, bread.
- Panophobia*, that kind of melancholy which is caused by groundless fears.
- Pantago*, medicines that drive humors out of the body.
- Papaver*, the poppy.
- Papilla*, the nipple of the breast.
- Pappus*, hairy, downy, the hair on the middle of the chin.
- Paula*, a small elevation of the cuticle with an inflamed base.
- Par*, pair.
- Paracentesis*, to pierce thro', the operation of tapping to evacuate the water in dropsy.
- Paracrusis*, disarrangements, where the patient is inattentive to what is said to him.
- Paracusis*, depraved hearing.
- Paralogia*, a delirium in which the patient talks wildly.
- Paralysis*, to loose, or weaken.
- Paraphimosis*, a retraction of the prepuce back of the glans towards the root of the penis.
- Paraphonia*, alteration of the voice.
- Paraphrenitis*, inflammation of the brain.
- Paraplegia*, palsy of one half of the body taken transversely.
- Paregoric*, that which allays pain.
- Parenchchyma*, the spongy and cellular substance, or tissue that connects parts together.
- Parhaemasia*, disease of the blood.
- Paroniria*, disturbed sleep.
- Paronychia*, a whitlow.
- Parotid Gland*, a gland near the ear.
- Parotitis*, inflammation of the parotid gland.
- Paroxysm*, an increase of the symptoms, which continue for some time, and then decline.
- Parturition*, the expulsion or birth of the fœtus from the uterus.
- Patella*, the knee pan.
- Pathognomonic*, the symptoms by which a disease is known.
- Pathology*, the doctrine of diseases.
- Pectoral*, the breast, belonging to, or that which relieves disorders of the breast.
- Pedethonus*, the motion of the arteries.
- Pediluvium*, a bath for the feet.

- Pelagra*, a species of leprosy.
Pelvic, pertaining to the pelvis.
Pelvis, the cavity below the belly.
Pemphigus, a bubble or vesicle, the vesicular or eruptive fever.
Pendulus, hanging.
Peptic, that which promotes digestion.
Peracute, very sharp.
Percolation, is generally applied to animal secretion.
Pericarditis, inflammation of the pericardium.
Pericardium, the membranous bag that surrounds the heart.
Perichondrium, the membrane that covers a cartilage.
Pericranium, the membrane that is closely connected to the bones of the head.
Perenium, the space between the anus and genital organs.
Periostium, the membrane that invests the external surface of all the bones, except the crowns of the teeth.
Peripneumonia, inflammation of the lungs.
Peripyema, a collection of matter about any part.
Peritoneum, the membrane that lines the cavity of the abdomen.
Peritonitis, inflammation of peritoneum.
Pernio, chilblain.
- Perspiration*, sweat.
Pertusis, whooping cough.
Pestilence, plague.
Pestis, plague.
Petechia, a red or purple spot that resembles a flea bite.
Petrifaction, stony matter deposited either in the way of incrustation, or within the cavities of organized substances, are called petrifications.
Petroleum, rock oil, a liquid bituminous substance which flows between rocks or in different places at the surface of the earth.
Phagedenic, to eat.
Phalanx, battalion, the rows of bones of the fingers and toes.
Phantasma, imagination.
Pharmaceutic, belonging to pharmacy.
Pharmacopeia, a dispensatory, or book of directions for the compositions of medicines.
Pharmacopola, a seller of medicines.
Pharmacy, the art of preparing remedies for the treatment of diseases.
Pharynx, the muscular bag at the back part of the mouth it receives the masticated food and conveys it into the œsophagus.
Pharyngotomy, the operation of cutting into the pharynx.
Philtrum, the medicine that is used to excite love.

- Phymosis*, a narrowness of the extremity of the prepuce.
- Phleborrhagia*, rupture of a vein.
- Phlegm*, mucous secreted from the lungs.
- Phlegmasia*, to burn, an inflammation.
- Phlegmon*, a bright red inflammation, with throbbing and acute pain.
- Phlogiston*, heat, to burn.
- Phlogosis*, to inflame, inflammation.
- Phosphate*, a salt formed by the union of phosphoric acid with salifiable bases.
- Photophobia*, a dread of light.
- Photopsia*, an affection of the eye in which the patient perceives luminous rays, ignited lines, or corruscations.
- Phrenes*, the diaphragm.
- Phrenitis*, phrenzy or inflammation of the brain.
- Phrenic*, belonging to the diaphragm.
- Phthisis*, pulmonary consumption.
- Phyma*, a tubercle on any external part of the body.
- Physema*, a windy tumor.
- Physiognomy*, the art of knowing the disposition of a person by the countenance.
- Physiology*, that science which has for its object the knowledge of the phenomena proper to living bodies.
- Physis*, nature.
- Pia mater*, the natural mother, a membrane so called because it embraces the brain as a good mother folds her child.
- Pictonius*, colica pictonum, the painters colic, occasioned by their constant use of lead.
- Pigmentum*, a mucous substance found in the eye.
- Piperine*, the active principle of pepper.
- Pisiform*, like a pea.
- Pituitary*, belonging to phlegm.
- Pix*, pitch.
- Pix Burgundica*, Burgundia pitch.
- Placebo*, the name of those medicines which are given with a view to please the patient, such are cinnamon, spice, camphor, the essential oils, bread pills, &c.
- Placenta*, cake, the after-burthen.
- Plethora*, an excessive fullness of the blood vessels.
- Pleura*, a membrane which lines the internal surface of the thorax.
- Pleuralgia*, a pain the pleura or side.
- Pleuritis*, *Pleurisy*, inflammation of the pleura.
- Plexus*, a net-work of vessels.
- Plumbum*, or *Plumbago*, lead.
- Pneumatic*, relating to air.
- Pnumonia*, inflammation of the lungs.
- Pnix*, a sense of suffocation.
- Podagra*, the gout.

Poison, Venenum, "that substance which, when applied externally, or taken into the human body, uniformly effects such a derangement in the animal economy as to produce disease, may be defined a poison. It is extremely difficult however, to give a definition of a poison, and the above is subject to great inaccuracy.

Poisons are divided with respect to the kingdom to which they belong, into animal, vegetable, mineral, and habituous, or ærial.

Poisons are in general only deleterious in certain doses ; for the most active, in small doses, from the most valuable medicines. There are nevertheless certain poisons, which are really such in the smallest quantity, and which are never administered medicinally ; as the poison of hydrophobia or the plague. There are likewise substances which are innocent when taken into the stomach, but which prove deleterious when taken into the lungs, or when applied to an abraded surface : thus carbonic acid is continually swallowed with fermented liquors and thus the poison of the viper is taken with impunity ; while inspiring carbonic acid kills, and the poison of the viper inserted into the flesh, often proves fatal.

Several substances also act

as poisonous when applied either externally or internally ; as arsenic.

When a substance produces disease not only in mankind, but in all animals, it is distinguished by the term common poison ; as arsenic, sublimate, &c. while that which is poisonous to man only, or to animals and often to one genus merely, is said to be a relative poison ; thus aloes are poisonous to dogs and wolves ; the *Phellandrium aquaticum* kills horses, while oxen devour it with impunity. It appears then, that substances act as poisons only in relation to their dose, the part of the body they are applied, and the subject.

Poisons enter the body in the following ways :

1. Through esophagus alone or with the food.
 2. Through the anus by clysters.
 3. Through the nostrils.
 4. Through the lungs with the air.
 5. Through the absorbents to the skin, either whole, ulcerated, cut or torn.
- Pollex*, the thumb or great toe.
Polygalia, having abundance of mirth.
Polypus, a tumor which is generally narrow where it originates, and then becomes wider, somewhat like a pear.
Polysarca, corpulency, obesity or fatness.

- Pompholyx*, a bladder, small vesicle, or bubble.
- Pomum*, apple.
- Pons*, a bridge.
- Popliteal*, relating to the knee.
- Porriga*, a disease common among children, in which the skin of the head becomes dry and callous, and comes off like bran upon combing.
- Portio*, portion.
- Porus*, a pore or duct.
- Posterior*, behind.
- Potassa*, *Potash*, so called from the vessels or pots in which it was first made, the vegetable alkali.
- Potassa*, *Nitrus*, nitre.
- Potassium*, the metallic basis of potassa.
- Poupart's Ligaments*, a strong ligament or rather a tendinous expansion of the external oblique muscle going across from the inferior and anterior spinous process of the ilium to the crista of the os pubis.
- Precordia*, the fore part of the region of the thorax.
- Precipitation*, to cast down.
- Predisposing*, to predispose.
- Predispose*, that constitution, or state of the solids, or fluids, or of both of which dispose the body to the action of disease.
- Primæ viæ*, the first passages, the stomach and bowels.
- Prior*, the first.
- Pro Re Natta*, occasionally.
- Probang*, a flexible piece of whale-bone with a sponge fixed at the end.
- Probe*, a long slender surgical instrument with which surgeons try the extent of wounds.
- Probosis*, a trunk as that of the elephant.
- Process*, an eminence.
- Procidencia*, a falling down of any part.
- Prognosis*, the foretelling the event of diseases from particular symptoms.
- Prognostic*, to know before hand.
- Prolapsus*, slip down.
- Pronation*, turning the palm of the hand downwards.
- Prone*, natural.
- Prophylactic*, any means made use of to prevent disease.
- Prostate*, a large heart like gland situated before the neck of the urinary bladder.
- Proximate*, first, near, or the thing itself.
- Prurigo*, the itch.
- Psora*, the itch.
- Pterygium*, like a wing.
- Ptyalagogue*, see sialagogue.
- Ptyalism*, salivation.
- Puerperal*, appertaining to child bearing.
- Pulmo*, the lung.
- Pulmonary*, belonging to the lungs.
- Pulmonitis*, inflammation of the lungs.
- Pulvis*, a powder.
- Pupil*, the opening in the middle of the iris.

- Pupillaris*, belonging to the pupil.
- Purgative*, any thing that increases the peristaltic motion of the bowels, so as to increase the alvine evacuations.
- Puriform*, like unto the secretion called pus.
- Perpura*, purple color.
- Purulent*, having the appearance of pus.
- Pus*, matter, a whitish, bland, creamlike fluid, heavier than water, found in phlegmonous abscesses, or on the surface of sores.
- Pustule*, or elevation of the cuticle, containing matter, pus, or lymph which is generally discolored.
- Putrefaction*, the spontaneous decomposition of such vegetable and animal matters as exhale a foetid smell.
- Pylorus*, the aperture of the stomach that opens into the intestines.
- Pyrexia*, from fire ; fever.
- Pyrexial*, appertaining to fever.
- Pyroligneous Acid*, so called because it is procured by distilling wood. This acid will preserve animal flesh, longer than any other known substance.
- Pyrosis*, water brash.
- Pyxis*, a box, now applied to the cavity of the hip bone.
- Q**
- Q. P.* (quantum placet,) as much as you please.
- Q. S.* (quantum sufficit,) sufficient quantity.
- Q. V.* (quantum vis,) as much as you will.
- Quartana*, the fourth day ague.
- Quassia*, from a slave by the name of Quassi, who first used it with uncommon success as a secret remedy in the malignant endemic fevers which frequently prevail at Surinam. The roots, bark, and wood of the tree are used. It is a valuable tonic.
- Quercus*, the oak.
- Quicksilver*, mercury.
- Quiescent*, at rest.
- Quina, or Quinine*, the active or medicinal principle of Peruvian bark.
- Quinquina*, Cinchonia.
- Quotidian*, ague that occurs daily.
- R**
- R.* This letter is placed at the beginning of a prescription, as a contraction of recipe ; take.
- Rabies*, Rabies Canines; madness, hydrophobia.
- Rachialgia*, a pain in the spine.
- Rachitis*, the rickets.
- Radial*, belonging to the radius.
- Radix*, the root.
- Ramus*, a branch.
- Rancid*, oily substances, are said to be rancid when they acquire a strong offensive smell, and altered taste.
- Ranine*, appertaining to a frog.

Ranula, a disease under the tongue, called from its resemblance to a frog or because it makes the patient croak like a frog.

Ranunculus, crane's bill or crow's foot.

Raphe, a suture, because the parts appear as if they were sewed together.

Rash, eruptions.

Receptaculum, a name given by the older anatomists to a part of the thoracic duct.

Rectification, to make clean.

Rectum, the last portion of the large intestines.

Rectus, straight.

Recurrent, reflected.

Reduction, to replace, reduce, revive.

Refrigerant, to cool, medicines which allay heat.

Regimen, to govern, regulation of the diet.

Region, a part.

Regius, or *Rex*, a king, royal.

Remedium, to cure, a remedy.

Remittent, any disorder the symptoms of which diminish very considerably, and return again, so as not to leave the person entirely free.

Reminiscence, an idea produced that one does not remember having had before.

Ren, the kidney.

Renal, appertaining to the kidney.

Reniformis, kidney shaped.

Repellent, to drive back.

Repens, creeping.

Repulsion, that property of all bodies, which is in constant opposition to attraction.

Resin, solid inflammable substances, of vegetable origin, soluble in alcohol, and oil but not in water.

Resolution, a termination of inflammation, in which the disease disappears without any abscess, mortification, &c. being occasioned.

Resolvent, such substances as discuss inflammatory and others tumors.

Respiration, breathing.

Resuscitation, from resuscitatio, resuscito, to rouse, and awake. Revivification.

The restoring of persons apparently dead to life.

From considering the drowned person is surrounded by water instead of air, and that in this situation he makes strong and repeated efforts to breathe, we should naturally expect that the water would enter and completely fill the lungs. This opinion was once pretty general, and it still continues to prevail among the common people. Experience, however, has shown that unless the body lies so long in the water as to have its living principle entirely destroyed, the quantity of fluid present in the lungs is inconsiderable.

The reason why the lungs of drowned animals are so free from water, is that the muscles which form the opening

into the windpipe are exquisitely sensible, and contract violently upon the least irritation, as we frequently experience when any part of the food or drink happens to touch that part. In the efforts made by a drowning person, or animal to draw in air, the water rushes into the mouth and throat, and is applied to these parts, which immediately contract in such a manner as to shut up the passage into the lungs. This contracted state continues as long as the muscles retain the principle of life, upon which the power of muscular contraction depends. When that is gone, they relax and the water enters the windpipe and completely fills it.

On dissection the body of a recently drowned animal, no particular fulness of the vessels within the skull, nor any disease of the brain or its membranes are visible. The lungs are also sound, and the branches of the windpipe generally contain more or less of a frothy matter, consisting chiefly of air mixed with a small quantity of colorless fluid.

The right cavity of the heart, and the trunks of the large internal veins which open into it, and also the trunk and large branches of the artery which carries the blood from this cavity through the lungs, are all distended with

dark colored blood, approaching almost to blackness.

The left cavity of the heart is nearly, or entirely empty, as are likewise the large veins of the lungs which supply it (nourish) with blood, and the trunk and principle branches of the great artery that conveys the blood from this cavity to the various parts of the body. The external blood vessels are empty; and the fleshy parts are as pale as if the animal had been bled to death. When a body has lain in the water for sometime, other appearances will also be observable, the skin will be livid, the eyes blood-shot, and the countenance bloated and swollen. But while these parts are found entirely drained of blood, the right cavity, as before observed, together with the veins and arteries leading to and from it, are turgid with blood; and this must be, at least, the direct cause of death, as there evidently is no injury suffered by any part, from which death could take place.

Rete, formed of meshes, a net.

Reticular, net-like.

Retiform, the same.

Retina, the innermost membrane of the eye, it is the expansion, and final termination of the optic nerve, and the immediate and sole organ of vision.

Retraction, a muscle, the of-

fice of which is to retract the part into which it is inserted.

Retahens, drawing back.

Retrocedent, *Retrograde*, backwards, returning to a former position, back movement.

Revulsion, drawing the contrary way.

Rhagas, a chap, bruise, or cleft.

Rheum Palmatum, the systematic name of the officinal rhubarb.

Rhypia, foul, ill conditioned.

Rib, costa.

Rima Glottidis, the opening of the larynx through which the air passes in and out of the lungs.

Risus, laughter.

Rosa, redness, like a rose.

Roseola, rash, a rose colored efflorescence.

Rotator, to turn, a muscle that is to wheel about any part.

Rotula, a wheel, the knee pan.

Rotundus, round.

Rubefacient, a substance which, when applied a certain time to the skin produces redness without blistering.

Rubeola, to become red, the measles.

Rubigo, red color, rust.

Rubigo Ferri, rust of iron.

Ructus, an eruction.

Rugosus, rugged.

Rupture, see hernia.

S

S. A. secundum artem, according to art.

S. or ss. semis, or half.

Saburra, dirt, sordes, filth, foul stomach, &c.

Saccated, evcysted, contained in a sac.

Saccharum, sugar, sweet, sugar cane, &c.

Saccharum Saturni, sugar of lead (acetate of lead or plumbum acetas.)

Saccho-lactic, sugar prepared from milk.

Saccus, sac, a bag.

Sacral, belonging to the sacrum.

Sacro, the same.

Sacrum, so called from *sacer*, sacred; because it was formerly offered in sacrifices; the os sacrum, see anatomy,

Sagittal, shaped like an arrow.

Salifiable, having the property of forming a salt.

Saline, of a salt nature.

Salinus, the same.

Saliva, the fluid which is secreted by the salivary glands into the cavity of the mouth.

The secretory organ is composed of three pair of salivary glands. 1. The parotid glands, which evacuate their saliva by means of the Stenonian duct, behind the middle dens molaris of the upper jaw. 2. The submaxillary glands, which pour out

their saliva through the Warthonian ducts on each side of the frenulum of the tongue by a narrow osculum. 3. The sublingual glands, situated between the internal surface of the maxilla and the tongue, which pour out their saliva through numerous Rivinian ducts at the apex of the tongue.

The saliva in the mouth has mixed with it. 1. The mucus of the mouth. 2. The roscid vapor from the whole surface of the cavity of the mouth.

The saliva is continually swallowed with or without masticated food, and some is also spit out. It has no color nor smell; it is tasteless, although it contains a little salt, to which the nerves of the tongue are accustomed. Its specific gravity is somewhat greater than water. Its consistence is rather plastic and spumous from the entangled atmospheric air.

The quantity of twelve pounds is supposed to be secreted in twelve hours. During mastication and speaking, the secretion is augmented, from the mechanical pressure of the muscles upon the salivary glands. Those who are hungry secrete a great quantity, from the sight of agreeable food.

Its use is, 1. it augments the taste of the food, by evo-

lution of sapid matter. 2. During mastication it fixes with, dissolves, and resolves into its principles, the food; and changes it into a pulaceous mass fit to be swallowed, hence it commences chymification. 3. It moderates thirst by moistening the mouth and fauces.

Salivial, spittle, or belonging to the saliva or spittle.

Salivato, *Salivation*, an increased secretion of saliva, a ptyalism.

Salpingo, a trumpet, or like a trumpet.

Salsola Kali, the plant which affords soda, the mineral alkali.

Salt, this term has been usually employed to denote a compound in definite proportions, of acid matter with an alkali, earth, or metallic oxide.

When the proportions of the constituents are so adjusted that the resulting substance, does not affect the color of infusion of litmus, or red cabbage, it is then called a neutral salt. When the predominance of acid is evinced by the reddening of these infusions, the salt is said to be acidulous, and the prefix, *super* or *bi*, is used to indicate this excess of acid. If on the contrary the acid matter appears to be in defect, or short of the quantity necessary for neutralizing the alka-

linity of the base, the salt is then said to be with excess of base, and the prefix, *sub* is attached to its name.

Sanative, that which heals diseases.

Sanctus, holy.

Sanguification, *Sanguificatio*, from *sanguis*, blood, and *faceo*, to make. A natural function of the body by which the chyle is changed into blood.

Sanguineous, bloody.

Sanies Ichor, a thin limpid, and greenish discharge, also a thick and bloody kind of pus.

Sapindus, Indian soap.

Sapo, soap.

Sarcology, the doctrine of the soft parts.

Sarcoma, a fleshy excrescence.

Sarcosis, the same.

Sardonic Laugh, a convulsive laugh, or spasmodic grin.

Sartorius, a tailor, the muscle by which tailors cross the legs.

Saturation, the state of a body which has a power of dissolving an other in certain quantity only ; thus when as much sugar is put in tea as the tea will dissolve, the tea is then said to be saturated ; if there is more put in so that the sugar is not dissolved, it is called a super saturation, if there is not as much sugar as the tea can dis-

solve, it is called sub saturation.

Satureia, from *satyri*, lustful, the principle of the love powder, used in uncivilized ages.

Saturnus, the chemical name of lead.

Scabies, to scratch, the itch.

Scalpellum, a scalpel or dissecting knife.

Scapula, the shoulder blade.

Scarf-Skin, see anatomy.

Scarification, a superficial incision, to scarify.

Scarificator, an instrument used by surgeons and cuppers to evacuate blood.

Sciatic, belonging to the ischium.

Sciatica, a rheumatic affection of the hip joint.

Scilla, squill.

Scirrhus, a hard indolent tumor of a glandular part.

Sclerotic, one of the coats of the eye.

Scorbutus, the scurvy.

Scrophula, scrofula, king's evil.

Sebaceous, suetty, like tallow.

Secale Cornutum, a black, curved, morbid excrescence like the spur of a fowl, the smut of rye.

Secondary, something that acts as second or in subordination to another.

Secretion, a function by which a part of the blood escapes from the organ of circulation, and diffuses itself without, or within, the body.

Secundines, the after birth, &c.

Secundum Artem, according to art.

Sedative, to ease, medicines that diminish the animal energy, without destroying life.

Sediment, the heavy parts of liquids which fall to the bottom.

Semen, seed.

Semi, half.

Semicircular, half circular.

Semicupium, a half bath, or such as receives only the hips or extremities.

Semilunar, half-moon shaped.

Sensation, feeling, the consciousness of a change taking place in any part, from the contact of a foreign body [with the extremities of the nerves.

Sensibility, that action of the brain by which we receive impressions either from within or from without.

Sensorium, the organ of any of the senses.

Sentient, the parts most susceptible of feeling.

Septic, to putrefy, relating to putrefaction.

Septum, a partition.

Serous, relating to serum.

Serpentaria, resembling a snake.

Serrata, *Serraticus*, a saw, or resembling a saw.

Setaceus, bristly.

Seton, an artificial ulcer made under the skin by means of

an instrument called the seaton needle, which carries with it a portion of thread or silk, this is moved backwards and forwards, and thus keeps up a constant irritation.

Shingles, a species of erysipelas.

Siagon, the jaw.

Sialagogue, those medicines are so called which excite an uncommon flow of saliva.

Sibbens, a disease resembling syphilis.

Silver, argentum.

Simplex, simple.

Sinapis, mustard.

Sinciput, fore part of the head.

Singultus, hiccup.

Sinus, a cavity or depression, a long hollow track.

Skeleton, from to dry, when the bones of the body are preserved in their natural situation, and deprived of the flesh, the assemblage is called a skeleton.

Sleep, that state of the body in which the internal and external senses and voluntary motions are not exercised. The design and end of sleep is both to renew, during the silence and darkness of the night, the vital energy which has been exhausted through the day, and to assist nutrition.

“When the time of being awake has continued for sixteen or eighteen hours, we have a general feeling of fa-

tigue and weakness ; our motions become more difficult, our senses lose their activity, the mind becomes confused, receives sensations indistinctly, and governs muscular contraction with difficulty. We recognise by these signs, the necessity of *sleep* ; we choose such a position as can be preserved with little effort ; we seek obscurity and silence, and sink into the arms of oblivion.

The man who slumbers loses successively his senses, the sight first ceases to act by the closing of the eyelids, the smell becomes dormant only after the taste ; the hearing after the smell, and the touch after the hearing, the muscles of the limbs, being relaxed, cease to act before those that support the head, and these before those of the spine. In proportion as these phenomena proceed, the respiration becomes slower and more deep ; the circulation diminishes ; the blood proceeds in greater quantity to the head ; animal heat sinks, the different secretions become less abundant. Man, although plunged in this sopor, has not yet lost the feeling of his existence, he is conscious of most of the changes that happen in him, and which are not without their charms ; ideas more or less incoherent, succeed each other in his mind ; he ceases,

finally, to be sensible of existence ; he is *asleep*.

During sleep, the circulation, and respiration are retarded, as well as the different secretions, and, in consequence, digestion becomes less rapid. I know not on what foundation the most part of authors say that absorption alone acquires more energy. Since the nutritive functions continue in sleep, it is evident that the brain has ceased to act, only with regard to muscular contraction, and as an organ of intelligence ; and that it continues to influence the muscles of respiration, the heart, the arteries, the secretions and nutrition. Sleep is profound when strong excitants are necessary to arrest it ; it is *light* when it ceases easily. Sleep, such as it has been described, is perfect, that is, it results from the suspension of the action of the relative organs of life, and from the diminution of the action of the nutritive functions ; but it is not extraordinary for some of the relative organs of life to preserve their activity during sleep, as it happens when one sleeps standing ; it is also frequent for one or more of the senses to remain awake, and transmit the impressions which it receives to the brain ; it is still more common for the brain to take cognizance of different in-

ternal sensations that are developed during sleep, as wants, desires, pains, &c.

The understanding itself may be in exercise in man during sleep, either in an irregular or incoherent, as it happens in some persons happily organised. The turn which the ideas assume during sleep, or the nature of dreams, depends much on the state of the organs.

If the stomach is overcharged with indigested food, the respiration difficult on account of position, or other causes, dreams are painful; fatiguing; if hunger is felt, the persons dreams of eating agreeable food, &c. &c. It is because the judgement is sometimes correctly exercised in dreams with regard to future events, that in times of ignorance the gift of divination was attributed to them.

Nothing is more curious in the study of sleep, than the history of sleep wakers.

Those individuals being first profoundly asleep, rise all at once, dress themselves, see, hear, speak, employ their hands with ease, perform certain exercises, write, compose, then go to bed, and preserve, when they are awake, no recollection of what happened to them. What difference is there, then, between a sleep walker of this kind, and a man awake? A very

evident difference—the one is conscious of his existence, the other is not.

Many hypotheses have been offered on the proximate cause of sleep, as the depression of the lamina of the cerebrum, the afflux of blood to the brain, &c. Sleep which is the immediate effect of the laws of organization, cannot depend on any physical cause of the kind. Its regular return is one of the circumstances that contributes the most to the preservation of health; its suppression, even for a short time, is often attended with serious inconvenience, and in no case can it be carried beyond certain limits.

The ordinary duration of sleep is variable; generally it is from six to eight hours. Fatigue of the muscular system, strong exertions of the mind, lively and multiplied sensations, prolong it, as well as habits of idleness, the immoderate use of wine, and of too strong aliments. Infancy and youth, whose life of relation is very active, have need of longer repose.

Riper age, more frugal of time, and tortured with cares, devotes to it but a small portion. Very old people present two opposite modifications; either they are almost always slumbering, or their sleep is very light, but the reason of this latter is not

to be found in the foresight they have of their approaching end.

By uninterrupted, peaceable sleep, restrained within certain bounds, the powers are restored, and the organs recover their facility of action; but if sleep is troubled by disagreeable dreams, and painful impressions, or even prolonged beyond measure, very far from repairing, it exhausts the strength, fatigues the organs, and sometimes becomes the occasion of serious diseases, as idiotism and madness.

Smell, see sense of in anatomy.

Sneezing; a convulsive action of the muscles of the chest from irritation of the nostrils.

Soda, the mineral alkali.

Sol; the sun.

Solvent; menstruum.

Solution, an intimate commixture of solid bodies with fluids, into one seemingly homogeneous liquor. The dissolving fluid is called a menstruum or solvent.

Somniferous, having the power of inducing sleep.

Sopor, profound sleep.

Soporiferous, a term given to whatever induces sleep.

Sound, an instrument which surgeons introduce through the urethra into the bladder, to discover whether there is

a stone in the viscus or not.

Spasmus, cramp, convulsion, spasm.

Spatula, a broad instrument for spreading salve.

Specific, a remedy that is an infallible cure for disorders; certain, fixed, definite object, &c.

Sphacelus, a mortification of any part.

Spheno or Spenoidal; belonging to the sphenoid bone.

Sphincter, from, to shut up, the name of several muscles, the office of which is to shut or close the aperture around which they are placed

Spinal, belonging to the spine (back bone) of the back.

Spinal Marrow, the marrow in the back bone.

Spine, the column of bones from the occiput to the os sacrum, the bones of the neck and back.

Splanchnology, the doctrine of the viscera.

Speen, the melt.

Splenitis, inflammation of the spleen.

Spongiosis, spongy.

Sporadic, such diseases as seize a few persons at any time or season.

Sputum; spit, any kind of expectoration.

Squamose, scaly.

Stapes, stirrup, a bone of the internal ear, so called from its resemblance to a stirrup.

- Staphyloma*, a disease of the eye ball in which the cornea loses its natural transparency, rises above the level of the eye, and successively projects, even beyond the eye lids in form of a whitish pearl colored tumor.
- Steatoma*, an encysted tumor, the contents of which are of a suety consistence.
- Sterility*, barrenness in women.
- Sterno*, belonging to the sternum.
- Sternum*, the breast bone.
- Stertor*, a noisy kind of respiration, as is observed in apoplexy.
- Stillicidium*; a stranguary or discharge of the urine drop by drop.
- Stimulant*, that which has the power of exciting animal energy.
- Stimulus*, that which rouses the action or energy of a part.
- Stirolobium*, the cowage or cowitch.
- Stomach Pump*, this is an instrument for the purpose of emptying the stomach of its contents, when poison has been taken. It is a long catheter made of gum elastic, which being introduced into the mouth, is passed into the oesophagus, and pressed forwards until the point reaches the stomach.
- A syringe adapted to the upper end is then applied, and the stomach is emptied of its fluid contents.
- Stomachic*, that which strengthens the action of the stomach.
- Strabismus*, squinting.
- Strangury*, a difficulty of passing urine.
- Stricture*, a diminution or contracted state of some tube or duct of the body.
- Strophulus*, a papulous eruption peculiar to infants.
- Struma*, this term is generally applied to scrofula, and by some to bronchocele, or an induration of the thyroid gland.
- Strumous*, of the nature of scrofula.
- Stupor*, insensibility.
- Styliform*, like a bodkin, or style.
- Styptic*, a term given to those substances which passes the power of stopping hemorrhage.
- Sub*; under, beneath.
- Subacetate*, an imperfect acetate.
- Subcartilaginous*, under the quality, imperfect, or a structure approaching to that of cartilage.
- Sub. Clavian*; under, or that which passes beneath the clavicle.
- Sub* (under) *Cutaneous*, (skin); under the skin.
- Sublimation*, a process by which volatile substances

- are raised by heat, and again condensed in a solid form.
- Sublingual*, under the tongue.
- Subluxatio*, a sprain.
- Submersion*, putting under the water, sinking &c.
- Submuriate*, an imperfect muriate.
- Subscapularis*, under the shoulder blade or scapula.
- Subsultus*, to leap.
- Subsultus Tendinum*; weak convulsive motions or twitchings of the tendons, mostly of the hands, generally observed in the extreme stages of putrid fevers.
- Succedaneum*; a medicine substituted for another.
- Succiniate*, a salt formed by the combination of the acid of amber (succinic acid) with a salifiable base.
- Succinic*. Belonging to amber.
- Succulens*; juicy, rich.
- Succus*. Juice.
- Sudatio*. A sweating.
- Sudatorium*. A stew, or sweating house.
- Sudor*. Sweat or perspiration.
- Sudorific*, see diaphoretic.
- Suffocatio*. Suffocation.
- Suffumigation*. The burning odorous substances to remove an evil smell, or destroy miasma.
- Suffusio*, to pour down a cataract, an extravasation of blood &c.
- Sugillation*. A bruise. A spot or mark made by a leech, cuppingglass, or any thing that ruptures the small vessel and causes an extravasation of blood.
- Sulphas*. A sulphate or salt formed by the union of the sulphuric acid with a salifiable base.
- Sulphur*. Brimstone.
- Sulphuric*. Belonging to sulphur.
- Sulphuric Acid*. Oil of Vitriol.
- Super*. Over, excess, addition. upon.
- Supercilium*. Eyebrow.
- Suppuration*. That morbid action by which pus is deposited in inflammatory tumors.
- Supra*. Above. This word before any other name, implies its situation being above.
- Surfeit*. The consequence of excess in eating or drinking or of something unwholesome in food.
- Suspensorium*. A bag or bandage to suspend any part.
- Suture*. See anatomy and surgery.
- Sympathy*. The body is sympathetically connected together; and dependent, the one part upon the rest; constituting a general sympathy.
- Action cannot be greatly increased in any one organ,

without being diminished in some other ; but certain parts are more apt to be affected by the derangement of particular organs than others ; and it was the observance of this fact which gave foundation to the old and well known doctrine of sympathy, which was said to proceed, *tum ob communionem et similitudinem generis tum ob viciniam*.—It may be thought that this position of action being diminished in one organ, by its increase, either in the rest or in some other part, is contradicted by the existence of general or actions affecting the whole system. But in them we find in the first place, that there is always some part more affected than the rest.

This local affection is sometimes the first symptom, and affects the constitution in a secondary way, either by the irritation which it produces, or by an extension of the specific action. At other times the local affection is coeval with the general disease, and is called sympathetic. It is observed, in the second place, that as there is some part which is always more affected than the rest, so also is there some organ which has its action, in consequence of this, diminished lower than that of the rest of the system, and most commonly lower than its natural standard.—

From the extensive sympathy of the stomach with almost every part of the body, we find that this most frequently suffers, and has its action diminished in every disease, whether general or local, provided that the diseased action arises to any considerable degree. There are also other organs which may, in like manner, suffer from their association or connexion with others which become diseased. Thus, for instance, we see, in the general disease called puerperal fever, that the action of the breast is diminished by the increased inflammatory action of the uterus.

In consequence of this balance of action, or general connection of the system, a sudden pain, consequent to violent action of any part will so weaken the rest as to produce fainting, and occasionally death. But this dependence appears more evidently in what may be called the smaller systems of the body, or those parts which seem to be more intimately connected with each other than they are with the general system.—Of this kind is the connexion of the breasts with the womb of the female ; of the urethra with the testicles of the male ; of the stomach with the liver ; and of the intestines with the stomach ; and of this again with the brain ; of one ex-

extremity of the bone with the other ; and of the body of the muscle with its insertion ; of the skin with the parts below it ; and all these systems, are connected to the general system by a universal sympathy.

I shall give but one instance for demonstration.

In pregnancy, and at the menstrual periods, the uterus is active, but, when the child is born, the action of the uterus subsides, while the breasts in their turn become active, and secrete milk. If, at this time we should again produce action in the uterus, we diminish that of the breasts, and destroy the secretion of milk, as is well illustrated by the case of inflammation of the uterus, which is incident to lying-in women.

When the uterus, at the cessation of the menses, ceases to be active, or to secrete, we often find that the breasts have an action excited in them becoming slowly inflamed, and assuming a cancerous disposition. The uterus and breasts seem to be glands that balance each other ; for we seldom, if ever see, find that when the womb yields the menstrual discharge, the milk is secreted in perfection, nor during the time of a woman's nursing, that the periodical shows are regular or perfect, neither do we ever find the breasts and uterus both inflamed at once.

And the affection of one organ, weakens the one or those with which it has connection, thus in inflammation of the womb, irregularities of the stomach, &c., the brain is weakened through sympathy, and the head, it is said, swims : when the head is inflamed, or rather the brain and its membranes, the womb becomes too weak for its natural offices ; the stomach and bowels lose their action, the whole system following suit : hence the debility and general emaciation attendant on such complaints ; and the necessity of cathartics to promote the peristaltic motion of the bowels, and stimulants and tonics to avert the debility and rouse the system to vigorous action, and natural health.

Symphysis. A connexion of bones by means of an intervening body such as cartilage, ligament, &c.

Synarthrosis. Immoveable connexion. A genus of connexion of bones, in which they are united together by an immoveable union. It has three species, viz. suture, harmony, and gomphosis

Synchondrosis. A species of symphysis, in which one bone is united with another by means of an intervening cartilage ; as the vertebra, and the bones of the pubes.

Syncope. Fainting or swooning.

Syndesmosis. That species of symphysis or mediate connexion of bones in which they are united by ligament, as the radius with the ulna.

Syndesmus. A ligament.

Syneurosis. That species of symphysis in which one bone is united to another by means of an intervening membrane.

Synovia. An unctuous fluid secreted from certain glands in the joint in which it is contained. Its use is to lubricate the cartilaginous surfaces of the articulatory bones, and to facilitate their motions.

Synovial. Relating or belonging to the synovia or fluid of the joints.

Syntenosis. A species of articulation where the bones are connected together by tendons.

Synthesis. Combination.—It is opposed to analysis.

Syrups. Sugar dissolved in water is called simple syrups.

Syssarcosis. A species of symphysis in which one bone is united to another by means of an intervening muscle, as the os hyoides with the sternum and other parts.

Systole. The contraction of the heart.

T

Tabacum. Tobacco.

Tabes. A wasting of the body.

Tanacetum. Tansy.

Tannin. One of the immediate principles of vegetables. It is that which communicates *tan* to leather.

Tarantula. A kind of venomous spider, whose bite is said to be cured by music.

Temperament. A peculiar habit of body.

Technical. Belonging to art.

Tartar cream of. The popular name of the pulverized super tartrate of potassa.

Tear. The limpid fluid secreted by the lachrymal glands, and flowing on the surface of the eyes.

Teguments. Under the term common integuments, anatomists comprehended the cuticle, rete mucosum, skin, and adipose membrane, as being the covering to every part of the body except the nails.

Temperature. A definite degree of sensible heat as measured by the therinometer.

Temple. The lateral and flat parts of the head above the ears.

Tendon. The white and glistening extremity of a muscle.

Tenesmus. A continual inclination to go to stool,

without any evacuation.
Tensor. Applied to those muscles whose office is to extend the part to which they are fixed.

Tent. A roll of lint for dilating openings, sinuses, &c.

Tentorium. A process of the dura mater, separating the cerebrum from the cerebellum.

Terebinthina. Turpentine.

Teres. Round cylindrical. Applied to some muscles and ligaments.

Ternary. Consisting of the number three.

Ternate. Applied in botany to a leaf which consists of three leaflets, or to leaves when there are three together.

Terra. The earth.

Thea. Tea. The dried leaves of the tea-tree, of which there are two species, viz.

1. The *thea nigra*, bohea, or black tea. 2. The *viridis*, or green tea. Both species are natives of China or Japan, where they grow to the height of five or six feet.—The leaves are collected at three different times, in February, March, and April.—They are dried on iron plates suspended over a fire, till they become dry and shrivelled.

There are three kinds of *green*, and five of *bohea*.—

The green includes,

1. Imperial or bloom tea,

having a large leaf, faint smell and a light green color.

2. Hyson, having small curled leaves, green shade inclining to blue.

3. Singlo tea, so called from the place where it is cultivated.

The boheas comprehend,

1. Souchong, the infusion of which gives a yellowish green color.

2. Camho, a fine tea, fragrant violent smell, and a pale shade.

3. Pekoe tea, is known by the small white flowers that are mixed with it.

4. Congo tea, has a larger leaf than the preceding, and yields a deeper tint to water.

5. Common bohea, the leaves of which are of a uniform green color. There are many other kinds of tea such as gun powder tea, &c. &c. but they differ from the preceding only in the manner of their collection and cure. According to professor Brande's experiments, there were, in one hundred parts of Green Hyson at 14s per lb. 56 parts inert residue: at 12s, 57 parts; do.: at 10s, 57 do.; at 8s, 58 do.; at 7s, 59 do.

Black Souchong at 12s, 64 parts inert residue: at 10s, 63 parts do.: at 8s, 63 do.; at 7s, 64 do.; at 6s, 65 do.

Tea, in its natural state, is narcotic, and the Chinese refrain from its use until, by keeping it for at least twelve months, it becomes divested of its narcotic properties.

Taken in moderate quantities with sufficient milk and sugar, it invigorates the system, but when taken to excess, it is apt to occasion weakness, tremor, palsies, &c., and to aggravate hysterical and hypochondriacal complaints.

Therapeutics. That part of medicine which treats of the application and operation of the different means employed for curing diseases.

Thorax. The chest. That part of the body situated between the neck and the abdomen.

Thoracic. Belonging to the thorax or chest.

Thrombus. A small tumor which sometimes arises after bleeding, from the blood escaping from the vein into the cellular structure surrounding it.

Thyro. Names compounded with this word belong to muscles which are attached to the thyroid cartilage.

Thyroid. Resembling a shield.

Thyroid cartilage. The scutiform cartilage, which constitutes the upper and

forepart of the larynx, called adam's apple.

Tibial. Belonging to the tibia.

Tissue. A term introduced by the French anatomists to express the textures which compose the different organs of animals.

Tonic. That which strengthens or increases the tone of the muscular fibre. Applied also to a rigid contraction of the muscles, as in tetanus.

Topical. Medicines applied to a particular place.

Tormina. Severe pains.

Torpor. A numbness, or deficient sensation.

Tourniquet. An instrument used for stopping the flow of blood into a limb.

Toxicology. A dissertation on poisons.

Trachea. The windpipe.

Tracheotomy. The operation of cutting open the trachea.

Transfusion. The transmission of the blood from one living animal to another by means of a canula. Harvey was thirty years before he could get his discovery admitted, though the most evident proofs of it were every where perceptible; but as soon as the circulation was acknowledged, people's minds were seized with a sort of delirium; it was thought that the means

of curing all diseases was found, and even of rendering man immortal. The cause of all our evils was attributed to the blood; in order to cure them, nothing more was necessary but to remove the bad blood, and to replace it by pure blood, drawn from a sound animal.

The first attempts were made upon animals, and they had complete success. A dog having lost a great part of its blood, received by transfusion, that of a sheep, and it became well. Another dog, old and deaf regained by this means the use of hearing, and seemed to recover its youth. A horse of twenty-six years having received in his veins the blood of four lambs, he recovered his strength.

Transfusion was soon attempted upon man. Denys and Emerez of Paris, were the first who ventured to try it. They introduced into the veins of a young man, an idiot, the blood of a calf, in greater quantity than that which had been drawn from them, and he appeared to recover his reason. Leprosy and the ague were also cured by this means; and several transfusions were made upon healthy persons without any disagreeable result.

However, some sad events happened, to calm the general

enthusiasm caused by these repeated successes. The young idiot we mentioned fell into a state of madness a short time after the experiment. It was tried on him again, and he was immediately seized with a hematuria, and died in a state of sleepiness and torpor. A young prince of the royal blood was also the victim of it, and the parliament of Paris prohibited transfusion. A short time after, two patients in Italy died of the operation, and the pope prohibited it also. Since that period transfusion has been considered not only useless, but even dangerous.

Transparency. Clearness.

That quality of bodies by which they transmit the rays of light.

Transpiration, see perspiration.

Transudation, the passing or oozing through the cells or pores of any thing.

Trapezium, a four sided figure.

Trapezium, four square.

Traumatic, any thing relating to a wound.

Treacle, molasses.

Tremor, an involuntary trembling.

Trepan or trephine, an instrument used by surgeons to remove a portion of bone from the skull.

Triceps. Three headed.

Tricuspid. Three pointed.
Tripartite. Divided into three.

Tritorium. A mortar.

Trituration. The act of rubbing or grinding to powder.

Trochar. An instrument used in tapping for the dropsy.

Trochanter. The name of two processes or protuberances of the thigh bone. It is derived from a Greek word which signifies to run: because the muscles inserted into them perform the office of running.

Trochlea. A kind of cartilaginous pulley through which the tendon of a muscle of the eye passes.

Trochoides. Like a wheel. A moveable connexion of bones in which one bone rotates upon another.

Truss. An instrument to keep the intestines in their proper place in cases of rupture.

Tuber. Applied, in anatomy, to some parts which are rounded; in surgery, to a knot or swelling in any part; in botany, to a round root, as a turnip; hence they are called tuberosc roots.

Tubercles. Small hard bunches.

Tumour. A swelling.

Tunica. A membrane or covering, as the coats of the eye, &c.

Turbinate. Shaped like a sugar loaf.

U

Ulcer. A running sore.

Ulna or Cubit. The larger bone of the fore arm.

Ulnar. Belonging to the ulna.

Umbilicus. The navel.

Umbilical. Belonging to the navel.

Unciform. Hook-like.

Unguentum. An ointment.

Unguis. The nail.

Urea. A constituent principle of the urine.

Urinary. Appertaining to the urine.

Urethra. The canal which conveys the urine.

Uterus. The womb.

Uterine. Belonging to the womb.

Uvula. The palate.

V

Vacca. The cow.

Vaccination. Inoculation with cow-pox matter.

Vaccine. Relating to cow-pox matter.

Vagina. The passage to the uterus.

Valetudinarian. A weak, sickly person.

Valva. A valve. A thin transparent membrane situated within certain vessels, as arteries, veins, and absorbents, which prevents the contents of the vessel from flowing back.

- Variolus.** Small-pox matter.
- Vascular.** Belonging to the vessels.
- Vehicle.** A liquor to take medicines in.
- Venous.** Belonging to the veins.
- Ventilation.** A free admission of air.
- Venomous,** (applied to animals,) or **virulent,** (applied to medicines,) poisonous.
- Vermifuge.** That which destroys worms.
- Vertigo.** Giddiness.
- Vesicating.** Blistering.
- Villous.** Shaggy, rough, or hairy.
- Virus.** Poisonous matter.
- Viscus.** Any organ or part which has an appropriate use, as the viscera of the abdomen, the liver, spleen, intestines, &c.
- Viscid.** Glutinous, tenacious.
- Vas.** A vessel.
- Velum.** A veil.
- Venereal.** Relating to the sexual intercourse.
- Vena.** A vein.
- Ventricle.** A name given to the cavities of the brain and heart.
- Vermiform.** Worm-like.
- Vermicular.** Shaped like, or having the properties of a worm.
- Vermis.** A worm.
- Vertebra.** The bones of the spine from the head to the lower part of the trunk.
- Vertebral.** Appertaining to the bones of the spine.
- Vertex.** The crown of the head.
- Vesicle.** A blister.
- Vesicatory.** That which raises a blister.
- Via.** A way or passage.
- Vis.** Power.
- Vis insita.** That inherent power or property of a muscle by which when irritated it contracts, independent of the will and without the sense of pain.
- Vis vitæ, or vital power.** The natural power of the animal machine in preserving life.
- Vis a tergo.** Any impulsive power.
- Vitreous.** Glassy.
- Volatility.** That property of bodies by which they are disposed to assume the vaporous or elastic state, quitting the vessels in which they are placed.
- Vulneraria, or vulnerary.** Those medicines which heal wounds.
- Vulnus.** A wound.

W

Water. Pure water is transparent, without color, smell, or taste, but is hardly ever found in that state. The waters that flow on the earth contain various earthy, saline, metallic, vegetable, or animal particles, according to the substances over or thro' which they pass. Rain and snow waters are much purer than these, although they also con-

tain whatever floats in the air, or has been exhaled along with the watery vapors.

Winter Bark. A useful and cheap aromatic. It was named after Capt. Winter who brought it from the straits of Magellan in 1579, and introduced it to the knowledge of physicians as being useful in scurvy, &c.

Wort. An infusion of malt. This has been found useful in the cure of the scurvy, and Dr. Macbride has laid it down as a principle "that the scurvy depends on the fermentative quality in the remedies made use of." Its general effects are laxative, nutritious, and strengthening. It has also been successfully used in other cases where a strong and putrid disposition in the fluids appeared to prevail, as in cancerous and phagedenic ulcers.

As the efficacy of the malt infusion depends upon its producing changes in the whole mass of fluids, it is plain that it must be taken in large quantities for a considerable length of time, and rather as an article of diet than medicine. From one to four pints is to be taken during the day. One part by measure of ground malt, should be mixed with three of boiling water, well stirred, covered, and left to stand for three or four hours.

It ought to be made fresh every day.

X

Xiphoid. A term given by anatomists to parts which had some resemblance to an ancient sword, as the xiphoid cartilage.

Y

Yaws. The African name for raspberry. Also the name of a disease which resembles a raspberry.

Ypsiloides. The os hyoides : so named from its likeness to the Greek letter ypsilon, or *v*.

Yttria. An earthy or metallic substance, discovered in 1794 by Professor Gadolin, in a stone from Ytterby, in Sweden.

Z

Zero. The commencement of a scale marked 0 : thus we say, the zero of Fahrenheit, which is 32 degrees below the freezing point of water. The absolute zero is the imaginary point in the scale of temperature, when the whole heat is exhausted.

Zoology. History of animals.

Zoonomia. The laws of organic life.

Zootomy. The dissection of animals.

Zygoma. (From the Greek word for yoke : because it

transmits the tendon of the temporal muscle like a yoke.) The cavity under the zygomatic process of the temporal bone, and os malæ.

Zygomatic. Any thing relating to the zygoma.

Zythogala. A mixture of beer and milk, common called passet drink.

INDEX.

A		page			page
Ague,		163. 9	Antacids,		230
Causes, of		10	All acids, use of,		232
Prognosis, of		ib	Arrow,		234
Treatment of,		11	Anthelmintics,		235
Affusion, Cold,		18	Arabic emulsion,		238
Acute rheumatism,		68	A table of medicines for		
Apoplexy,		74	family use with their		
Asthma,	89.	172	doses and qualities,	241	
Angina Pectoris,		93	A table of the prices of		
Animation suspended,		94	the principal medicines,	303	
Asphyxia,		ib	Asiatic Cholera,		307
Abdominal hemorrhago,		110	Anatomy,		339
Acne,		123	Arteries,	339.	374
A sour stomach,		177	Aorta, of		ib
American Botanic Rem-			Artery, Pulmonary,		379
edies,		179	Action of Arteries,		ib
Angelica,		ib	Absorbents, of the,		383
Alum root,		180	“ physiology of,		ib
Agrimony,		ib	Abdomen, parts within,		384
Avens root,		ib	Aqueous humour of the		
Asarum or swamp Asara-			eye,		393
bacca,		ib	Aneurism, or enlarged		
Arrow root,		181	artery,		411
American senna,		191	Actual cautery,		419
American Hellebore,		197	Adhesive plaster,		420
A table of weights & meas-			Amputation,		444
ures,		201	“ of the arm,		445
Antispasmodics,		206	“ of the thigh,		446
Assafoetida,	222.	207	“ below the knee,		ib
Arsenic,		212	“ of the fore arm,		447
Aqua Fortis,		ib	“ of the fingers & toes,		ib
Anise, seeds and oil		215	B		
Astringents,		ib	Bark,		
Alum,	230.	216	Substitutes for,		14
Antimony,		218	Bilious fever,	164.	16
“ Tartarized,		ib	Causes of		ib
“ Wine of,		ib	Symptoms,		ib
Aloes,		120	Treatment of,		ib
Ammoniac gum,		227	Warm bath in,		17
Ammonia,		229	Cold affusion, do.		18

Diet in,	19	" of the lower limb,	351
Bleeding from the nose, 72.	170	" of the connexion of	352
Bleeding from the lungs,	73	Buccinator muscle,	362
Symptoms,	ib	Brain,	366
Treatment,	74	Basilic vein,	380
Bite of a mad dog,	85. 175	Belly contents of,	384
Breathing difficult,	89	Bladder, gall,	385
Bronchocele,	88	Ball of the eye,	390
Bleeding from the urethra,	113	Breathing,	394
Blotched, or pimpled face,	123	Boils,	403
Bearing down,	145	Blind Boils,	404
Botanic practice,	163	Bleeding, means of stop-	
Bite of a rattle-snake,	175	ping,	417
Burns and scalds,	176. 407	Bite of the viper,	422
Black Alder,	180	" of the rattle-snake,	423
Bearberry,	182	Bleeding or Venesection,	ib
Beech drops,	ib	" ill consequences from,	424
Blood root,	183	Ball, of its course,	428
Blackberry,	ib	Broken bones,	437
Burdock,	184	C	
Broad leaved laurel,	186	Continued fever,	24
Bittersweet,	189	Common, or simple con-	
Black snake root,	190	tinued fever,	29
Blue flag,	193	Symptoms of	ib
Beth root,	194	treatment of	30
Blue cohosh,	ib	Cow pox,	36
Butternut tree,	195	Chicken pox,	39
Bitumen petroleum,	207	Catarrh,	51
Blue vitriol,	212. 216	Cynanche Tonsillaris,	52
Black Hellebore,	220	Cynanche Parotidea,	54
Broom corn,	224	Chronic Laryngitis,	55
Balsam of Copaiba,	ib	Consumption,	167. 60
Boneset,	185. 226	Symptoms of	ib
Balsam of Tolu,	227	Causes of	61
" of Gilead,	ib	Treatment of	ib
" of Peru,	ib	Chronic Rheumatism,	69
Benzoïn and Benzoic acid,	ib	Chorea,	81
Blisters,	228	Chronic diseases of the	
Burgundy pitch,	229	thorax,	88
Bones, of the,	340	Chronic affections of the	
" formation of	341	heart,	91
" number of	ib	Chemical tests,	99
" of the skull,	342	Cholic,	107
" of the face,	ib	Chronic constitutional	
" of the trunk,	346	diseases,	115
" of the upper limb,	350	Cachexia,	116

Cachexia Africana,	117	Cholera, Asiatic,	307
Cutaneous Hemorrhæa,	118	“ history of,	ib
Chronic diseases of the skin,	123	“ symptoms of,	310
Contagion,	131	“ causes of,	312
Chlorosis or green sickness,	141	“ method of preventing,	317
Cutaneous eruptions of		“ treatment of,	ib
children,	157	“ treatment of, in Asia,	319
Cutting teeth,	158. 466	“ treatment of, in Eu-	
Convulsions,	158	rope,	320
Croup,	161	“ treatment of, in Can-	
Symptoms & causes of	ib	ada and the United	
Treatment of	162	States,	328
Cholera morbus,	168	Cholera deaths, a table of	
Cancers,	173	the proportion of,	333
Celandine,	181	Cholera, cases of	334. 335.
Crawley or fever root,	182		336. 337
Comfrey,	ib	Cartilages,	340
Cicuta, or poison hemlock,	186	Comparative anatomy,	ib
Camomile,	219. 188	Cranium or skull, sutures	
Colts foot,	189	and bones of,	342
Charcoal of wood,	197	Cervical vertebra,	348
Crane's bill,	217. 196	Cavity of the pelvis,	350
Classification of medicines,	201	Clavicle or collar bone,	ib
Chemical remedies,	ib	Cubit or ulna,	ib
Camphor,	203	Carpus or wrist,	351
Castor,	207	Connexion of bones,	352
Calomel,	221. 209	Cartilages and ligaments,	357
Copperas,	211	Cuticle,	364
Copper,	ib	Cutis, or true skin,	ib
Cinchona,	212	Cellular membrane,	ib
Cusporia febrifuga,	213	Cerebrum or brain,	366
Columbo,	ib	Cerebellum,	ib
Cinnamon,	214	Coronary vessels,	370
Cassia,	ib	Carbuncle,	403
Canella alba,	ib	Chilblains,	408
Cloves,	ib	Corns	ib
Cardamon,	215	Schirrhus or cancer,	409
Cathartics,	219	Cicatrization,	430
Castor oil plant,	220	Concussion,	432
Cream of tartar,	221	Cataract,	448
Croton oil,	222	Couching, operation of,	449
Corrosive sublimate,	230	Cataract, extraction of,	450
Cowhage or cowitch,	235	Caries, or decay of teeth,	467
Cabbage tree,	236	Cleaning the teeth,	470
Conserves,	ib	Cerates,	247
Camphor emulsion,	238		

D			
Delirium Tremens,	49	" of the foot,	ib
symptome of,	ib	Disease of the tongue,	453
causes of,	ib	" of the tonsils & uvula,	454
treatment of,	ib	" of the gums,	468
Difficult breathing,	89	Diseased teeth, effects of,	469
Death beginning at the lungs,	94	E	
Death beginning at the brain,	95	Eruptive fevers, or the ex-	
Death beginning at the heart,	ib	anthemata,	34
Death by effect upon the sys-		character of,	ib
tem generally,	ib	Eruptions, smaller,	45
Dysentery,	169. 105	Eye, inflammation of,	50
Dracunculus,	109	Erysipelas,	71
Diabetes,	172. 118	Epistaxis,	72
symptoms of,	ib	Epilepsy,	77
treatment of,	119	Elecampane,	183
Dropsy,	168. 120	Ergot,	197
causes & treatment of,	ib	Ether,	202
Diseases of women & chil-		Empyreumatic, or animal	
dren,	137	oil,	207
Disease of the breast,	155	Emetics,	208. 217
Diseases of children,	ib	Epsom salts,	221
Distortion of the spine,	159	Errhines,	228
Dispensatory,	201. 179	Epispastics,	ib
Dandelion,	183	Euphorbia,	229
Dwarf elder,	186	Escharotics,	ib
Dogwood,	187	Emmolients,	234
Deadly nightshade,	188	Extraction of pulps,	236
Diuretics,	223	Emulsions,	237
Diaphoretics,	225	Electricity, see dictionary,	
Diluents,	233	also,	240
Demulcents,	ib	Ethmoid bone,	345
Decoctions,	239	Enarthrosis,	352
Dorsal vertebra,	248	Explation of plate I.	354
Dura mater,	365	" of plate II.	361
Ductus alimentalis	385	Elevator labii superioris	
Diaphragm,	386	proprius,	ib
Dislocations,	434	External parts, and common	
Dislocation of the lower jaw,	435	integuments,	364
" of the neck,	ib	External caroted artery,	374
" of the shoulder,	436	Esophagus,	385
" of the elbow,	ib	Eye, of the,	390
" of the wrist, fingers,		" ball of,	ib
&c.	ib	" humours of,	392
" of the hip joint, or		Ear, of the,	393
wigh,	437	Enlarged veins,	410
		Enlarged artery,	411

Encysted tumors,	412	Foreign bodies in the eso-	
Edema,	415	phagus,	456
Extraction of foreign bo-		Formation of the teeth,	462
dies from wounds,	419	Flowing,	147
Extraneous bodies in		G	
wounds,	428	Gastritis,	64
Extraction of the cataract,	450	Gout,	70
Effects of diseased teeth,	469	Guinea worm,	109
Extraction of the teeth,	470	Gravel,	112
F		Gonorrhea dormientium,	114
Fever, or febrile diseases,	7	Gonorrhoea or clap,	128
Fever and ague,	163. 9	Gleet,	130
Frambesia,	47	General treatment of all	
Falling sickness,	77	fevers,	133
Fainting,	92	Green sickness,	141
Face, pimpled,	123	Gripping,	157
Fomites,	133	Ground pine,	194
Fluor albus,	141. 178	Gravel weed,	192
Fits, hysterical,	142	Galbanum,	208
Five fingers or cinquefoil,	182	Gentian,	186, 214
Fever-few or feather-few,	183	Ginger,	215
Ferrum,	210	Galls,	217
Fox-glove,	224	Gamboge,	221
Fly, Spanish,	228	Glauber salts,	ib
“ potatoe,	195	Guaiacum,	225
Flax seed,	233	Garlic,	226
Fixed or expressed oils,	237	Gum ammoniac,	227
Fibres,	339	“ Arabic,	233
Fluids,	340	General rule for making	
Frontis os,	344	inspissated juices,	237
Femoris os,	351	Gases,	240
Fleshy polypus of the nose,	411	Ginglymus,	353
Fever sore,	414	Gomphosis,	ib
Fellon,	115	Glands, of the,	365
Fractures of the cranium,	431	Great artery,	374
Fractures in general,	437	Ganglion,	410
“ of the bone of the nose,	438	Gun shot wounds,	428
“ of the lower jaw,	439	treatment of,	429
“ of the collar bone,	ib	Granulations,	430
“ of the fore arm, arm,		Gums, diseases of	468
wrist, and ribs,	440	Glossary,	273
Fracture of the thigh bone,	441	H	
“ of the knee pan,	443	Herpes,	45
“ of the leg,	ib	Hepatitis,	66
“ of the bones of the foot,	443	treatment of,	ib

- | | | | |
|------------------------------|----------|------------------------------|------|
| chronic, | ib | treatment, | 11 |
| treatment of, | 67 | Inflammation of the brain, | 48 |
| Hemorrhages, | 72 | symptoms of, | ib |
| Hydrophobia, | 85 | causes, | ib |
| Hooping cough, | 90 | treatment, | ib |
| Heart, description of, | 369 | Inflammatory diseases, | ib |
| “ affection of, | 91 | Inflammation of the eye, | 50 |
| “ palpitation of, | 92 | Influenza, | 51 |
| “ death beginning at, | 95 | treatment, | 52 |
| Heptalgia, | 104 | Inflammation of the larynx, | 54 |
| Hemorrhoids, | 111 | causes, treatment, | 55 |
| Hematuria, | 113 | Inflammation of the lungs, | 57 |
| Hemorrhæa, | 118 | causes, and treatment, | 58 |
| Hydrothorax, | 121 | Inflammation of the pericar- | |
| Hydropericardium, | 122 | dium, | 62 |
| Hiccup, | 157. 127 | Inflammation of the stom- | |
| Heart burn, | ib | ach, | 64 |
| Hysteria, | 142 | Inflammation of the bowels, | 65 |
| Hysteritis, | 153 | Inflammation of the liver, | 66 |
| Hydrocephalus, | 159 | Indigestion, | 101 |
| Hives, | 161 | Inflammation of the kidney, | 113 |
| Headache, pills for, | 176 | Ischuria renalis, | 114 |
| Horse radish, | 191 | Impotency, | ib |
| Henbane, hyosciamus, | 205 | Involuntary discharges of | |
| Hydrargyrum, | 209 | the semen, | ib |
| Hydro sulphuret of ammo- | | Itch, | 124 |
| nia, | 218 | Incubus, | 126 |
| Horn, hartshorn shavings, | 234 | Inflammation of the womb, | 153 |
| Heat, | 235 | Inward fits, | 159 |
| Hip bone, | 349 | Inflammation of the trachea, | 161 |
| Humeri ossa, | 350 | Itch ointment, | 173 |
| Hyoides os, | 363 | Indian tobacco, | 184 |
| Healthy ulcers, | 404 | Indigo weed, | 196 |
| Humours of the eye, | 392 | Iron, | 210 |
| Hæmorrhage, means of stop- | | “ rust of, | ib |
| ping, | 417 | “ tincture of, | ib |
| Head, injuries of, | 431 | “ sulphate of | 211 |
| Hip, dislocation of, | 437 | “ tartrate of, with pot- | |
| Hare lip, | 447 | ash, | ib |
| | I | “ wine of, | ib |
| Introduction, | 3 | “ water impregnated | |
| Inflammatory fever,, 165. 25 | | with, | ib |
| causes, | ib | Ipecac, | 219 |
| treatment, | 26 | Iceland liverwort, | 234 |
| Intermittent fever,, 9 | | Isinglass, | ib |
| causes, | 10 | Iron filings. | 235. |

Indian pink,	236	" cautions to be observ-	
Inspissated juices,	237	ed during,	ib
Infusions,	238	" third stage of,	ib
Inominatum os,	349	" general directions,	152
Integuments common,	364	Ladies' slipper,	193
Insensible perspiration,	365	Lung-wort,	ib
Internal viscera,	368	Laurus camphora,	203
Inflammation of,	399	Lime,	212
" phlegmonous,	ib	Lemon,	214
" erysipelatous,	400	Lead,	215
Irritable ulcers,	405	Litharge,	ib
Indolent ulcers,	406	Lobelia inflata,	219
Injuries of the head,	431	Lunar caustic,	230
Irregularities of the teeth,	465	Lime water,	232
J		Liquorice,	233
Jaundice,	103. 171	Lympheducts,	339
causes, symptoms,	ib	Ligaments,	357. 340
treatment,	104	Lens,	393
Jenson,	186	Limbs, frozen,	407
Juniper berries,	224	Ligature,	418
Jalap,	220	Lacerated wounds,	421
Jerusalem oak,	192	Leg, fracture of,	443
K		Lithotomy,	439
King's evil,	116	Longitudinal sinuses,	366
cure for,	171	M	
King's evil weed,	192	Miliary fever,	22
Knee-pan,	443	causes, treatment of	23
L		Madness, mania,	79
Lichen,	46	symptoms, causes,	ib
Local inflammatory diseases,	48	treatment,	80
Laryngitis,	54	Menstruation,	138
Chronic,	55	Modified small pox,	166
Liniments,	247	Measles,	39. 166
Lungs, inflammation of,	57	Mercury,	227. 209
description of,	369	" sore mouth from,	177
bleeding from,	73	Mortification,	178. 401
death beginning at,	94	Mallows,	187
Liver, inflammation of,	56	Mustard,	ib
description of,	385	Maiden hair,	194
Locked jaw,	83	Milkweed,	169
Life, turn of,	142	Meadow saffron,	198
Labor,	149	Measures,	201
" natural,	150	Medicines, classification of	ib
" management in,	ib	" table of doses of,	241
" second stage of,	151	" table of prices of,	303

Mumps,	54	Neuralgia,	87
Musk,	206	O	
Mild cathartics,	219	Ophthalmia,	50
Magnesia,	220	Obstruction of the courses	
Muriate of soda,	222	in women,	139
Mandrake,	189	treatment of,	ib
Mustard seed,	223	Oak,	187
Mezcreon,	228	Oak of Jerusalem,	192
Marsh mallow,	233	Opium,	204
Mixtures,	237	Oil, empyreumatic,	207
Mineral waters,	229	" Cajeput,	208
Mucilages,	238	" of vitriol,	215
Membranes,	239	" castor plant,	220
Maxilla superior,	346	Orpiment,	212
Malarum, ossa,	ib	Orange,	214
Maxilla inferior,	347	Oil, croton,	222
Muscles,	357	" of turpentine,	224
Mastoides, or }		" olive	234
Masseter, }	361	Orange, conserve of,	236
Membrane arachnoidea,	366	Oil of Almonds,	ib
Mixtures,	254	" castor, how to make,	237
Minot exanthemata,	45	Occipital suture,	342
Medulla oblongata,	366	Osteology,	340
spinalis,	ib	Orbicularis muscle,	361
Mediastinum,	368	Omentum,	334
Messentery,	385	Œsophagus,	385
N		Edema,	415
Nervous fever,	26	Operation of trephining,	433
causes, treatment of,	27	" for the hare-lip,	447
Nose, bleeding from,	73	" of couching,	449
Nerves,	339	" for the stone,	459
" painful affections of,	87	Ointments,	247
Night mare,	126	P	
Natural labor,	150	Practice of physic,	7
Nanny bush,	190	Paroxysm of ague,	9
Nunk root,	ib	Prognosis, of,	10
Narcotics,	202	Plague,	32
Nutmegs and		Pox, cow or kine,	36
Mace,	214	" small,	35
Nitre, Nitrate of potash,	223	" modified do.	38
" spirit of	ib	Pox, chicken,	29
Nerves, of the,	364	" syphilitic,	129
" functions of,	ib	Pemphigus,	46
Nose, polypus of	411	Pompholyx,	47
Neck, dislocation of,	435	Phrenitis,	48
" wounds of,	454	Pneumonia,	56

Pleurisy,	56	" nitrate of,	ib
Peripneumony,	57	Pelitory,	228
" termination, causes,		Periosteum,	352
treatment,	58	Pili,	365
" notha,	59	Pia mater,	366
Pericarditis,	62	Pleura,	368
Podagra,	70	Pericardium,	369
Palsy,	76	Pulmonary artery,	379
Painful affections of the face,	87	Practice of surgery,	399
Palpitation of the heart,	92	Polypus of the nose,	411
Poisons,	98	Phymosis & paraphymosis,	416
" from arsenic,	ib	Particular remarks,	419
" corrosive sublimate,	99	Process by which a wound	
" pearl-ash,	101	is united,	421
" acid,	ib	Punctured wounds,	ib
Psora,	124	Poisoned wounds,	422
Psoriasis,	125	Paracentesis,	452
Prurigo,	ib	Q	
Pulse, of the,	134	Quotidian type,	9
Periodical courses,	133	Quartan do.,	ib
Pregnancy,	144	Quinsy,	52
" diseases of,	145	Queen of the meadow,	185
Putrid fever,	166	Quercus,	187
Plasters,	245	Quinine,	213
Piles,	111. 170	Quick lime,	216
Pleurisy root,	185	Quilled suture,	420
Powders,	244	R	
Pie plant,	189	RECEIPTS.	
Pills,	242	For making bilious pills,	242
Poplar,	190	" Laxative pills,	243
Pride of china,	191. 236	" Pills of aloes and assa-	
Pokeweed,	ib	foetida,	ib
Parsley, wild,	192	" Anti-hysteric pills	ib
Potatoe flies,	195	" Hull's colic pills,	ib
Peach tree,	ib	" Dr. Fuller's anti-relax	
Peppermint,	198	pills,	ib
Prickly ash,	199	" Mercurial or blue pills,	ib
Papaver somniferum, or		" Half grain pills of cal-	
Popy, white,	203	omel,	ib
Precipitate, red,	209	" Strengthening female	
" white,	210	pills,	244
Peruvian bark,	212	For making powders,	ib
Purging cassia,	219	" Picra,	ib
Purgatives,	220	" Gum powder,	ib
Phosphate of soda,	222	" Dover's powder,	ib
Potash and potassa,	223	" Aromatic powder,	ib

- | | | | |
|---------------------------------------|-----|-------------------------------------|-----|
| For making snuff powder, | ib | Tincture compound, of | |
| " Compound powder of | | peruvian bark, | ib |
| chalk, | 245 | " aromatic | ib |
| " Compound powder of | | " of gum myrrh and | |
| Kino, | ib | pepper, | ib |
| " Compound saline pow- | | " of guaiacum, | ib |
| der, | ib | " of black hellebore, | 251 |
| <i>For making plasters,</i> | ib | " of colchicum, | ib |
| " Diachylon, or common | | " of the muriate of iron, | ib |
| plaster, | ib | " of essence of pepper- | |
| " Strengthening plaster, | 246 | mint, | ib |
| " Adhesive plaster, | ib | " of American hellebore, | ib |
| " Anodyne plaster, | ib | Elixir of vitriol, | ib |
| " Blistering plastering, | ib | Spirit of mindercerus, | ib |
| " Gum plaster, | ib | <i>For making syrups,</i> | ib |
| " Stomach plaster, | ib | Simple syrup, | ib |
| <i>Cerates, liniments & oint-</i> | | Syrup of vinegar, | 252 |
| <i>ments,</i> | 247 | " of orange, | ib |
| " Simple cerate or salve, | ib | " of lemon, | ib |
| Goulard's cerate, | ib | " of meadow saffron | ib |
| Simple liniment, | ib | " of sarsaparilla, | ib |
| Lime water liniment, | ib | " of roses, | ib |
| Liniment of camphor, | ib | <i>For making wines,</i> | 253 |
| Volatile liniment, | ib | Wines of meadow saffron, | ib |
| Turpentine liniment, | ib | " of antimony, | ib |
| Ointment of nitrous acid, | ib | " of ipecacuanha, | ib |
| Turner's healing cerate. | 248 | " of aloes, | ib |
| Ointment of white hellebore, | ib | " of rhubarb, | ib |
| Strong unguentum, | ib | " compound, of gentian, | ib |
| Mild unguentum, | ib | <i>For making mixtures, &c.</i> | 254 |
| Yellow ointments, | ib | Cathartic mixture, | ib |
| Red precipitate, | 249 | Febrifuge mixture, | ib |
| For ointment, | ib | Sweating drops, | ib |
| Sulphur ointment, | ib | Solution of arsenic, | ib |
| Basilicon ointment, | ib | Solution of sal ammoniac, | ib |
| <i>For making tinctures,</i> | ib | Gravel mixture, | ib |
| Tincture of opium, or laud- | | Gargle for sore mouth, | ib |
| anum, | ib | Itch lotion, | 255 |
| Paregoric, | ib | Stimulating glyster, | ib |
| Tincture of aloes, | ib | Emollient glysters, | ib |
| " of rhubarb, | ib | Tar water, | ib |
| " of myrrh, | ib | Styptic water, | ib |
| " of assafoetida, | 250 | <i>Promiscuous or miscellanc-</i> | |
| " of camphor, | ib | <i>ous receipts.</i> | ib |
| " of kino, | ib | Fomentation of poppies, | ib |

Cooling lotion,	ib	Goulord's lotion,	261
Liniment for burns,	ib	Issue peas,	ib
Poultice for ulcers,	256	Tasteless ague drops,	ib
Lotion for old ulcers,	ib	Mosaic gold,	ib
Charcoal poultice,	ib	Queen's metal,	ib
Cure for corns,	ib	Red tombac,	ib
To stop bleeding,	ib	Common pewter,	ib
Eye waters,	ib	The best pewter,	ib
Dr. Radcliffe's cough mixture,	ib	Common solder,	262
For common use,	ib	Hard solder,	ib
For diarrhea or looseness,	ib	Soft solder,	ib
Cure for piles,	257	Printer's types,	262
Remedy for gout,	ib	Small types, and stereotype plates,	ib
Gout cordial,	ib	Mode of casting,	ib
Worm pills,	ib	Metallic injections,	263
Hooper's pills,	ib	Cushions for electrical machinery,	ib
Lee's Windham antibilious pills,	ib	To plate looking-glass,	ib
Lee's New London bilious pills,	ib	To silver glass globes,	ib
Lip salve	258	To make brass,	264
Basilicon ointment,	ib	To make pinchbeck,	ib
Opodeldoc,	ib	To make bronze.	ib
Steer's opodeldoc,	ib	To make imitation of pla- tina,	ib
Hill's balsam of honey,	ib	To make gilding metal,	ib
Balsam of hoarhound,	ib	To make dipping metal,	ib
Bateman's pectoral drops,	ib	To make solder for steel joints,	ib
Swinton's daffy,	ib	To make solder for iron,	ib
Squire's elixir,	259	To make Jewelers' solder,	ib
Black drop,	ib	To make silver solder for plating,	265
Godfrey's cordial,	ib	To make gold solder,	ib
Black pectoral lozenges,	ib	To make ring gold,	ib
Oxymel of squills,	ib	To make imitation of gold,	ib
Vinegar of squills,	ib	To gild glass and porce- lain,	ib
Beef tea,	ib	To gild leather,	266
Seidlitz powders,	260	To gild writings, draw- ings, &c., on paper or parchment,	ib
Soda powders,	ib	To gild silk, satin, and ivory with gold at a most	
Tooth powder,	ib		
British oil,	ib		
Pomatum,	ib		
Styptic tincture,	ib		
Sponge tents,	ib		
Emetin,	ib		
Elastic gum bougies,	ib		
Elastic gum cathetus,	ib		

- | | | | |
|------------------------------|-----|----------------------------|-----|
| insignificant expense, | ib | Compound Sandarac var- | ib |
| To dissolve gold in aqua | ib | nish, | ib |
| regia, | ib | Wax varnish for furniture, | ib |
| To procure hydrogen gas, | 267 | To make Turner's varnish | ib |
| To gild copper, | ib | for boxwood, | ib |
| To gild steel with gold at | ib | Gallipot varnish, | 274 |
| a trifling expense, | ib | Lacquer for brass, | ib |
| Gold powder for gilding, | ib | To prepare water proof | ib |
| To cover bars of copper | ib | boots | ib |
| with gold, | ib | To make leather and oth- | ib |
| Grecian gilding, | 268 | er articles water proof, | ib |
| To make amalgam of gold, | ib | To make black japan, | 275 |
| To gild by amalgamation, | ib | To make blacking, | ib |
| To silver by heat, | ib | To make Bailey's compo- | ib |
| To silver in the cold way, | 269 | sition for blacking cakes, | ib |
| To plate iron, | ib | To make blacking balls | ib |
| To tin copper and brass, | ib | for shoes, | ib |
| To tin iron and other ves- | ib | To make liquid japan | ib |
| sels, | ib | blacking, | ib |
| To prepare the silver tree, | ib | A cheap method, | ib |
| Metallic watering, | ib | To make turpentine var- | ib |
| To flower silks with silver, | 270 | nish, | ib |
| To weld steel, iron, and | ib | To make varnishes for vio- | ib |
| cast-steel, | ib | lins, &c., | ib |
| Case hardening, | ib | To varnish glass, | 276 |
| English cast-steel, | ib | To make white copal var- | ib |
| To make edge-tools from | ib | nish, | ib |
| cast-iron, | ib | To make black copal var- | ib |
| To color steel blue, | ib | nish, | ib |
| To give a drying quality | ib | To make yellow copal | ib |
| to fat and poppy oils, | 271 | varnish, | ib |
| For coarse painting, | ib | To make blue copal var- | ib |
| Resinous drying oil, | ib | nish, | ib |
| Fat copal varnish, | 272 | To make india rubber var- | ib |
| Varnish for watch cases | ib | nish, | ib |
| in imitation of turtoise | ib | Economical white house | ib |
| shell, | ib | paint, | ib |
| Colorless copal varnish, | ib | To make cheap beautiful | ib |
| Gold colored varnish, | ib | green paint, | ib |
| Camphorated mastic var- | ib | To make a composition | ib |
| nish for paintings, | ib | for rendering canvas, | ib |
| Shaw's mastic varnish for | 273 | linen, and cloth, dura- | ib |
| paintings, | ib | ble, pliable, and water. | 277 |
| To make painter's cream, | ib | proof, | ib |
| Sandarac varnish, | ib | To make it green, | ib |

To make it yellow,	ib	To take stains out of mahogany,	ib
To make it red,	ib	To take out writing,	ib
To make it white,	278	To make a fire and water proof cement,	ib
To prepare a substitute for cochineal,	ib	For brewing ale or strong beer in small families,	283
To clean pictures,	ib	Cheap beer,	ib
To dye cotton and linen blue,	ib	For making beer and ale from pea-shells instead of malt,	ib
To dye a silk shawl scarlet,	ib	To fine beer,	ib
To dye silk lilac,	279	To restore stale or sour beer,	284
To dye silk stockings, &c.,	ib	To restore ropy beer,	ib
To obtain a dyeing matter, from potatoe tops,	ib	To make spruce beer,	ib
To turn red hair black,	ib	" " red currant wine,	ib
To edge white gloves purple,	ib	" " compound wine,	ib
To dye gloves resembling Limerick,	ib	" " imitation of port wine,	ib
To stain beech wood a mahogany color,	280	" " American honey wine,	285
For staining paper yellow,	ib	" " grape wine,	ib
For staining it crimson,	ib	To detect sugar of lead, corrosive sublimate, and antimony, in wines,	ib
For staining it green,	ib	To make British brandy,	ib
For staining it orange,	ib	To obtain rum from molasses,	286
For staining it purple,	ib	To rectify whiskey into Holland gin,	ib
Hare's method of blackening shell lac.	ib	" obtain sugar from beet root,	ib
To clean black veils,	ib	" make Usquebaugh,	ib
To clean white satin and flowered silks,	ib	" preserve meat or smoked hams,	ib
To clean colored silks of all kinds,	281	Acid of ants,	ib
For scouring clothes, &c.	ib	Honey water for the hair,	287
To revive faded black cloth,	ib	Portable lemonade,	ib
To take iron moulds out of linen,	ib	Substitute for tea,	ib
To remove spots of grease from cloth,	282	Substitute for coffee,	ib
To take mildew out of linen,	ib	Coffee milk,	ib
To take out spots of ink,	ib	To remove freckles from the face and improve the complexion,	ib
To clean all sorts of metal,	ib		

- | | | | |
|------------------------------|-----|----------------------------|-----|
| To make the teeth white, | 288 | Remedy against the bite of | |
| " clean the teeth, | ib | the turnip fly, | ib |
| " prevent the tooth ache, | ib | To preserve eggs, | ib |
| " perfume clothes, | ib | A substitute for milk and | |
| The best rouge for the face, | ib | cream, | ib |
| A wash for sun burnt faces | | The best way to preserve | |
| and hands, | ib | butter, | ib |
| To make Windsor soap, | ib | To cure musty grain, | ib |
| Shining black ink, | ib | " remove flies from | |
| For making red ink, | ib | rooms, | ib |
| " " green writing | | " make excellent bread, | 293 |
| ink, | 289 | " manufacture glass, | ib |
| " " good common | | Materials for the best | |
| printing ink, | ib | looking-glass plates, | ib |
| " " best printing | | For making common or | |
| ink, | ib | green window glass, | ib |
| " " printers' red ink, | ib | To preserve milk, | ib |
| " " perpetual ink | | " cure smoky chimneys, | ib |
| for inscriptions on tomb | | " avoid injury from bees | 294 |
| stones, | ib | " raise water in all situ- | |
| Substitute for Indian ink, | ib | ations, | ib |
| Indelible ink for marking | | " bring horses out of a | |
| linen, | ib | stable on fire, | ib |
| To convert sheep-skins | | Curious mode of silvering | |
| into leather, | 290 | ivory. | ib |
| To prepare sheep leather | | Paste for sharpening ra- | |
| for various elegant pur- | | zors, | ib |
| poses by dyeing, | ib | To escape the effects of | |
| To dye morocco and sheep | | lightning, | ib |
| leather, | 291 | To remedy the effects of | |
| To dye it blue, | ib | dram-drinking, | 295 |
| " " red, | ib | The air bath, | ib |
| " " purple, | ib | For botts in horses, | ib |
| " " green, | ib | To dye a silk shawl crim- | |
| " " yellow, | ib | son, | ib |
| " " orange color, | ib | " dye feathers or bris- | |
| To preserve plants from | | tles green, | ib |
| frost, | ib | Blue for the same, | ib |
| " preserve fruit trees in | | Red for the same, | 296 |
| blossom from frost, | ib | To stain oak a mahogany | |
| " remove the mildew on | | color, | ib |
| wheat, | 292 | A suitable varnish for the | |
| Uses to which frozen pota- | | same, | ib |
| toes may be applied, | ib | To stain musical instru- | |
| To destroy the fly on tur- | | ments crimson, | ib |
| nips, | ib | Purple for the same, | ib |

To extract grease spots from silks and colored muslins,	ib	Cider cake,	ib
To take stains out of silks,	ib	Whip,	ib
" take spots of paint from cloth,	ib	To make venison paste,	301
White mead wine,	ib	" dress a turtle,	ib
Red mead or metheglin wine,	ib	A good gravy for any use,	ib
Cider wine,	297	Wedding cake,	ib
Excellent ginger wine,	ib	Election cake,	ib
To restore sour wines,	ib	Bachelor's loaf,	ib
Hard pomatum,	ib	Oyster pie,	302
Cephalic, or headache snuff,	ib	Cure for sore backs of horses,	ib
To tan without bark or mineral astringent,	ib	An infallible lotion for blows, bruises, and sprains in horses,	ib
" weld tortoise shell,	298	A composition to render wood fire proof,	ib
" make cement for met- als,	ib	Foundered feet,	ib
" make isinglass glue,	ib	Hoof bound,	ib
Mahogany colored cement,	ib	Lampas, or lampers,	ib
To make red sealing wax,	ib	Instantaneous light boxes	303
" " black sealing do.,	ib	To make exhilarating gas,	ib
" " green sealing do.,	ib	Remittent fever,	16. 164
" " blue sealing do.,	ib	Rheumatism,	68
" " yellow sealing do.,	ib	Chronic,	69
" clean gold lace,	ib	Rattles,	161
" obtain the fragrant es- sences from the fresh rinds of citrons, oran- ges, &c.,	299	Rose willow,	187
" preserve phosphorus,	ib	River do.,	193
" make gun-powder,	ib	Rattlesnakes's plantain,	ib
A mode of preparing pa- per which shall resist moisture,	ib	Red chickweed,	197
To render paper fire proof,	ib	Red precipitate,	209
Shrewsbury cake,	300	Rose water,	217
Jumbles,	ib	Red saunders,	ib
Savoy biscuit,	ib	Rochelle salt,	221
Almond cake,	ib	Rhubarb,	223
Pound cake gingerbread,	ib	Refrigerants,	232
Ginger cake,	ib	Rule for making inspissa- ted juices,	237
Sugar cake,	ib	Rule for making volatile oils,	239
Cup cake,	ib	Receipts for compounding medicines,	241
		Rete mucosum,	364
		Radial artery,	377
		Respiration,	394
		Rupture,	413

Retention of urine,	458	Squirrel ear,	194
Removing the tartar from		Spiknard,	195
the teeth,	470	Sulphate of zinc,	218
S		" of copper,	ib
Substitutes for bark,	14	Squills,	219
Synochus,	29	Sulphur,	120
Synocha or inflammatory		Senna,	ib
fevers,	25	Scammony,	221
treatment of,	26	Savin,	223
Small Pox,	35	Seneka snake root, ib.	226
Scarlet fever or Scarlatina,	41	Sal Diureticus,	ib
Smaller eruptions,	45	Spirit of nitre,	ib
St. Vitus's dance,	81	Spanish fly,	228. 224
Syncope,	92	Sialagogues,	227
Suspended animation,	94	Sternutatories,	228
symotoms and treatment		Soda,	230
of,	95	Starch,	134
Sea sickness,	111	Spermaceti,	ib
Stoppage of the functions		Saline mineral waters,	239
of the kidneys,	114	Sulphureous " "	ib
Scrofula,	115	Sutures of the skull,	342
Scurvy,	116	Sphincter oris,	362
Scald head,	123	Sterno hyoidei,	ib
Squinting or strabismus,	126	Smelling, sense of	367
Scabies,	ib	Seeing, "	ib
Singultus,	127	Subclavian artery,	375
Syphilis,	129	Sanguification,	384
Sickness in pregnancy,	144	Surgery,	399
Swellings of the legs,	146	Suppuration,	400
Spitting blood,	170	Scirrhus,	409
Suppression and difficulty		Sarcomatous tumors,	412
of urine,	172	Scrophula,	413
Salt Rheum,	174	Sutures, surgical,	420
Scalds and burns, 176.	407	Sprains,	434
Strengthening plaster,	ib	Stone in the bladder,	459
Sore mouth,	177	Shedding the teeth,	464
Sour stomach,	ib	Setting artificial teeth,	472
Sore eyes,	178	Smut rye,	197
Sweet flag,	185	Sweet fern,	198
Sampson snake root,	187	tinctures,	249
Skunk cabbage,	190	Syrups,	251
Sanicle,	ib	Solutions, &c.,	354
Slippery elm,	ib	T	
Sumach or Shoemake,	191	Typhus icterodes,	20
Sarsaparilla,	193	Typhus, or nervous fever	26
Sassafras,	ib	or putrid fever,	166

Syncopalis,	31	Vitriol blue,	212
Tic Douloureux,	87	" green,	211
Tinea capitis,	123	" oil of,	215
Treatment of all fevers,	133	Venice turpentine,	222
Thornapple,	181	Volatile oils,	239
Tansy,	191	Verdigris,	212
Tag alder,	194	Vegetable tonics,	ib
Tonics,	208	Veins,	339
Tincture of iron,	201	Vertebra,	348. 349
Tartar emetic,	218	Veins, description of,	379
Tobacco,	226	Vitreous humor,	392
Tin,	235	Voice, of the,	395
Tendons,	339	Ventriloquism,	ib
Trapezius,	362	Varix, varicose vens,	410
Thoracic duct,	384	Venesection,	423
Tourniquet,	418	W	
Tonsils, diseases of,	454	Washington George death	
Trachea, wounds of,	455	of,	53
Tracheotomy,	457	Worms,	171. 108
Teeth, of the,	462	" Guinea,	109
Tartar on the teeth,	469	Women, diseases of,	133
removing from the		Whites,	141. 178
teeth,	470	Womb, diseases of,	153
Tinctures,	449	Water in the head,	159
Tumours,	412	saline mineral,	239
Trephining,	433	chalybeate do.,	ib
Turn of life,	142	sulphureous do.,	ib
U		carbonated do.,	240
Urticaria,	46	Wounds, bleeding from,	171
Uterus, inflammation of,	153	general remarks on,	417
Uva ursi,	182	process of union,	421
Unguentum,	248	punctured,	ib
Unguis,	365	lacerated and contused,	ib
Ulcers,	404. 405. 406	poisoned,	422
Union of wounds,	421	Wounds, gun shot,	428
Uvula diseases of,	454	White swelling,	174. 414
Urine retention of,	458	Wild turnip,	183
V		Wintergreen,	ib
Variola Vaccina,	36	Wild parsley,	192
Varicella Varioloides,	38	Willow, river,	193
Varicella Lymphatica,	39	White poppy,	ib
Venereal disease,	127	Witch hazel,	199
Virulent gonorrhea,	128	Weights,	201
Vomica nut,	205	Wine of iron,	211
Valerian,	208	White oxide of zinc,	ib
Vitriol white,	211	White vitriol,	ib

White canella,	214	Wrist, fracture of,	440
Wine of antimony,	218	Wounds of the neck,	454
Wild cucumber,	220	Wounds of the wind pipe,	455
White chalk,	231	" of the œsophagus,	456
Wax, bee's,	234	Wry neck,	457
Wines,	253	Y	
Whole number of bones		Yellow fever,	19. 165
in the human body,	341	Yaws,	47
Warts,	408	Yellow Ointment,	248
Weeping sinew,	410	" mild,	ib
Whitlow,	415	Yeast, use of,	402

APPENDIX.

THE THOMSONIAN PRACTICE OF MEDICINE.

DR. THOMSON argues that the immediate cause of all diseases, in a greater or less degree, is cold, or an unequal distribution of heat ; and therefore that they may be removed by one general remedy. That heat is life, and cold is death ; that cold is the enemy, and heat the friend of man, which, in all cases called fever, is in a disturbed condition by being driven from the inward part to the surface. The cold causes canker, but before the canker is seated, the strife will take place between cold and heat, as in the ague and fever ; while the hot flashes and cold chills remain, it is evident that the canker is not settled, and the hot medicine alone, occasionally assisted by steam, will throw it off. Then the great point is to raise the inward heat by vegetable stimulants, such as No. 2, 6, and the like, and keep the determining powers to the surface, by keeping up the inward heat on which life depends.

But when the contest ceases between heat and cold, the heat is steady on the outside ; then the canker assumes the power inside ; this is called a settled fever. Then the great point is to raise and keep up the internal heat with No. 1 and 2, so as to overpower the cold, and take off the canker with No. 3, and give the same by injection. In this way a fever may soon be turned. And disease in general may be treated by the same general rule : that is, by raising the internal heat to bring on perspiration, by cleansing and strengthening the stomach, until it can receive and digest a sufficient quantity of food to raise and maintain that heat which is necessary to life.

In all cases of disease injections may be administered to advantage ; they seldom or never do harm, and in many cases they are indispensably necessary, especially where there is canker or inflammation in the bowels, and if there is danger of mortification, add to the injection a tea-spoonful of No. 6 ; in cases of this kind the injection should be given first, or at the same time of giving the composition, or No. 2, 3, or

6 into the stomach. In all cases of disease where there is danger of mortification, add a tea-spoonful of No. 6 to each dose.

In the first stages of a fever, the patient should be carried through *a regular course of the medicine*, and repeated every second or third day, if the case should require it. The inward heat and perspiration should be kept up by giving a dose of No. 2, or 6, or both together in a tea of No. 3, or of the composition powder. If any nervous affections appear, add to each dose half a tea-spoonful of nerve powder; it may be used instead of opium in all cases of pain, restlessness, &c. and has none of those bad effects which often attend the use of opium. The doses of it may be repeated every ten or twenty minutes till it has the desired effect. The nerve powder is the root of the American valerian reduced to a fine powder.

Be careful in all cases after taking the patient through a course of medicine, to keep up the internal heat and perspiration by giving No. 2 and 6, in a tea of the composition powder. To prevent a relapse of the disease the patient should frequently drink, during the day, of a tea made of black poplar bark, and evening and morning a tea-cupful of tea made of No. 3. If costive, use the bitter root in powder, in doses of half a tea-spoonful, and give injections of No. 2 and 6, in a tea of No. 3, or according to the directions in the table of medicine, so as to procure at least one or two stools a day.

The patient's diet should be light and easy of digestion, given often and in small quantities. If taken through a course of medicine, or while under the operation of the emetic, the strength is to be supported by chicken broth, or milk porridge, to be given at each interval of vomiting. To open the pores on the surface of the skin, the patient should frequently be washed with soap suds or an alkali wash, especially when the fever runs high and the skin is dry—this helps to bring on a perspiration, and promotes the cure.

Fever is a disturbed operation of heat; what is commonly called fever is the effect, and not the cause of disease. Cold causes an obstruction, and fever arises in consequence of that obstruction to throw it off—this is universally the case; remove the cause and the effect will cease. No person ever died of a fever, for as death approaches the patient grows cold, until in death, the last spark of heat is extinguished.

A table or list of medicines, and their preparation, according to Dr. Thomson.

No. 1. *The emetic. Lobelia inflata, or Indian tobacco.* No. 1. may be prepared in three different ways.

The *first* preparation is to reduce the leaves, pods and seeds, together or separate, to a fine powder. The seeds are best. A tea-spoonful is a dose, and must be repeated once in ten or fifteen minutes until it operates. Put nothing hotter than blood-warm to the powder, or it will destroy its emetic virtues.

The *second* preparation is to bruise the green herb fine in a mortar, add the same quantity of spirits, mix and pound together, strain, and squeeze out all the liquor; a tea-spoonful of this liquor is a dose. To be managed as above, when given as an emetic. This preparation is a proper counter poison, and may be taken into the stomach, or externally applied. It is also an excellent medicine for the asthma or any complaint of the lungs. In cases where people get poisoned with ivy, or any other way, a wash of this generally gives immediate relief; a tea of the composition powder, or cayenne, should be drank at the same time.

The *third* preparation is the seeds reduced to a fine powder, of which put a large spoonful, and as much of No. 2, into a gill of No. 6, adding a tea-spoonful of nerve powder. A tea-spoonful is a dose. This, or either of the above preparations, should be bottled tight and kept for use. Shake well together before taking it. This third preparation is for the most violent attacks of disease, such as lockjaw, fits, bite of mad dog, drowned persons, and in all cases of suspended animation. In cases where the spasms are so violent that the patient has become stiff, and the jaws set, by pouring some of this liquid between the teeth it will relax the spasms as soon as it touches the glands at the root of the tongue, so that the mouth will open. Then give a dose and repeat it if necessary. Afterwards give a tea of No. 3, for canker, which seldom fails to give relief. It is also good to bring out measles and small pox; and if applied to pimples, warts, &c. it removes them.

No preparation of the lobelia will operate well as an emetic if the stomach be either *cold* or *sour*; therefore if the stomach be cold it should first be warmed by some warming herb drink; the composition tea, cayenne, or No. 6, is best. If sour, take a lump of pearlash of the size of a pea, dissolved in a little water; this will correct the acidity and sweeten the stomach. To promote the vomiting, drink pennyroyal.

tea; in order to have the stomach well cleansed repeat the dose as the case may require, and in the intermediate times of vomiting, chicken broth or milk porridge may be given to support the patient.

Lobelia is innocent on nature, and does not rend the system like tartar emetic. It never reduces the patient's strength but little; but when it comes in contact with disease of long standing, low patients, and also when much opium has been taken, &c. the symptoms are sometimes alarming; but no danger need be apprehended, for it is a certain sign of a turn of the disease. This emetic may be ventured on whenever a puke is admissible. After the operation is over the patient may eat any food that is easy of digestion.

No. 2. Cayenne pepper. Grind it fine, and for a dose give from half to a whole tea-spoonful, to be repeated every ten or fifteen minutes, until a free perspiration is raised; it may be given in a tea of the composition powder, in hot water, in a tea of No. 3, or any of the other numbers, and should be sweetened. The patient should be shielded at the same time with a blanket by the fire, or in bed. The American cayenne is said to be equally as good for medicine as the imported, but not so strong. Red pepper is a very good substitute.

No. 3. For canker, called patent coffee. Take of bayberry root, the bark; white pond lily, the root; hemlock, the inner bark; of each an equal quantity, reduced to powder and mixed together. Steep half an ounce of this powder in half a pint of boiling water. For a dose, a common wine-glassful sweetened. When all the ingredients cannot be had they may be used separate, or any of the following substituted in their place, viz: red raspberry, the leaves; witch-hazel, the leaves; sumach, (or shoemaker,) the leaves, bark, or berries.

No. 4. The bitters. Take of balmony the herb; black poplar, the inner bark; bayberry, the inner bark; of each equal parts to be reduced to powder—one ounce of this to a pint of hot water and a half pint of spirits, or to a quart of spirits. From a half to a whole wine glassful may be taken three times a day. For hot bitters, a tea-spoonful of No. 2, to one ounce of the powders.

No. 5. A strengthening syrup. Take of bayberry, the bark of the roots, and poplar bark, one pound of each; boil them in two gallons of water, strain and add seven pounds of

good sugar—then scald and skim it, add half a pound of peach or cherry stone meats, pounded fine ; when cold, add a gallon of good brandy, and keep it in bottles for use. Take half a wine glassful two or three times a day.

No. 6. The hot drops, or rheumatic drops. Take of good fourth proof brandy, or alcohol, one gallon ; one pound of gum myrrh, pounded fine ; one ounce of No. 2 ; put them together in a stone jug, stand the jug unstopped a few minutes in a kettle of boiling water ; then take it out and let it settle, and bottle it for use ; or let the ingredients stand four or five days in the jug without boiling. A tea-spoonful is a dose.

These drops may be employed to advantage in rheumatism, pain in the back or side, corns, fellons, wind and pain in the stomach or bowels, sprains, bruises, and wounds. They are good to bring down swelling in old sores, and allay inflammation ; to ease pain, and prevent mortification internally or externally ; good in most diseases either to be taken into the stomach, or by injection. In headache they often give relief by rubbing some on the forehead, snuffing a little up the nose, and swallowing some. It also prevents faint feelings by taking a small dose ; and it promotes perspiration. When applied externally in rheumatic pains, it may be mixed with the lobelia tincture, (second preparation) ; and in sprains, bruises, or strains, a little camphor and spirits of turpentine may be added.

Vegetable composition powder. Take of bayberry, the bark of the roots, two pounds ; the inner bark of hemlock, one pound ; ginger, one pound ; cloves, two ounces ; cayenne pepper, two ounces ; all reduced to a fine powder, well mixed, and sifted through a fine sieve. For a dose, turn a tea-cupful of hot water on a large tea-spoonful of this mixture, to be sweetened and drank when cool enough. In more violent cases add a tea-spoonful of No. 6 ; and in nervous affections, add half a tea-spoonful of nerve powder also, when cool enough to drink.

This valuable preparation may be used by young or old, male or female, with perfect safety in all cases of colds, headache, pain in the limbs, stomach or bowels, dysentery, diarrhoea, cold feet or hands, and female obstructions caused by cold. When taken, the patient should be warm in bed, to promote perspiration.

N. B. It is said the above preparation is better without the hemlock bark than with it.

Cough Powder. Take of skunk cabbage roots, four parts ; hoarhound, two parts ; wake robin or wild turnip, one part ; lobelia, one part ; cayenne, one part ; bayberry root bark, one part ; bitter root, one part ; nerve powder, one part ; all made fine, and well mixed together. Half a tea-spoonful for a dose, to be taken in West India molasses. The best time when going to bed, and to be persisted in till relief is obtained. These powders are good in any cough, consumption, &c.

Vegetable composition pills. Take a sufficient quantity of cold water, and the inner bark of slippery elm, reduced to a fine powder ; beat these well together so as to form a jelly ; to one pint of this add four ounces of loaf sugar pounded fine ; stir them well together, and then add two ounces of golden seal ; one ounce of bitter root ; one ounce of bayberry, the bark of the root ; balmony, the herb, half an ounce ; ginseng, two drachms—all to be reduced to a fine powder, and well mixed together ; after this add a sufficient of cayenne and nerve powder to form it into a proper mass for making pills. When formed into pills they may be rolled in the powdered bark of the elm, or in fine loaf sugar. From three to six is a dose for an adult. These pills are employed in costiveness, and other complaints of the bowels ; they operate as a very mild laxative, good to strengthen the digestive organs, and warm the stomach ; and are beneficial in most diseases—they relieve pain in the stomach of weak persons, caused by indigestion or weakness of the stomach.

Emetic pills. Take of the seeds of lobelia in powder, one ounce ; cayenne in powder, one ounce ; nerve powder, two drachms—take the extract or syrup of black poplar bark, three parts, and of No. 6, one part ; of these a sufficient quantity to form the whole into a proper mass for pills. The extract or syrup is made thus : boil the strength out of the bark ; fill up the kettle with water two or three times, strain off the liquor and boil it down to the consistency of thin molasses. These pills may be employed to scour the stomach ; they should be taken at night when going to bed. Enough should be taken to nauseate the stomach and not puke, (which is from two to six.) Should vomiting take place, the patient should drink pennyroyal tea, or the like, as hot as he can bear it. These pills are good for a sick headache, a cold watery and sour stomach, for indigestion, dyspepsia, &c.

For dyspepsia, in addition to taking the pills at night, half a tea-spoonful of the bitter root in powder, should be taken two or three times.

Injection. Make a strong tea of No. 3, or any of the articles recommended for canker ; strain off the tea while hot, add half a tea-spoonful of No. 2, and a tea-spoonful of No. 6. In nervous affections add half a tea-spoonful of nerve powder when cool enough to give—and in all cases two or three table-spoonful of West India molasses. If poison has been taken into the stomach or intestines, a tea-spoonful of the tincture No. 1, may be added, and likewise slippery elm bark ; the bark must be added to the first ingredients for the tea.

When the bowels are left sore on account of any disease, give an injection of a tea made of slippery elm bark ; red raspberry leaves, or witch-hazel leaves, or both ; this has a tendency to heal them.

Poultice. Take slippery elm bark, pulverized, with ginger and pounded cracker, make a strong tea of red raspberry leaves, or No. 3, and of these make a poultice. This is a proper application to old sores, scalds, bad burns, parts frozen, fellons, and whitlows. Renew the poultice once in twelve or twenty-four hours, keeping it wet with cold water, or the above tea, at each renewal wash the affected part with soap suds ; when the part discharges good matter, apply the salve.

Salve. Take of bees' wax and salt butter each one pound, one and a half pounds of turpentine, twelve ounces of balsam of fir, melt and stir them well together, then strain off. After the inflammation is allayed, it may be used for burns, scalds, freezes, all bad sores, fresh wounds, &c.

Nerve ointment. Take of bitter-sweet, the bark of the roots, two parts ; equal quantities of wormwood and camomile, one part ; put these into any kind of soft animal oil, simmer them over a slow fire for twelve hours, strain and add to each pound of ointment, one ounce of spirits of turpentine. To be used for bruises, sprains, strains, callus, swellings, corns, &c.

Cancer balsam or plaster. Boil a strong decoction of red clover heads in a brass kettle down to the consistence of tar, without burning it ; it is then fit for use. It cures cancers in the first stages, sore lips, and old sores. Or see *cancers*, page 173.

Strengthening plaster. Take of burdock and mullen leaves, bruise, and put them into a kettle of water ; boil them well, strain, and press all the juice out of the leaves. Boil

down the liquor till half as thick as molasses, add three parts of rosin, and one of turpentine, simmer them together till the water is evaporated ; then pour it into cold water and work it with your hands, if too hard, add more turpentine. Spread it on thin leather and apply to the part affected. It is good for lame backs, sides, sprains, and rheumatism.

Wine bitters. Take of golden seal two ounces, bitter root one ounce, nerve powder one drachm, balmony 2 drachms, black poplar the inner bark, two drachms, cayenne half a drachm. One ounce of these reduced to a fine powder may be added to a quart of wine ; from half to a wine-glass may be taken three times a day. Port or claret wine is best.

These bitters cause an agreeable warmth through the system, by increasing the circulation of the blood. Good in dyspepsia, nervous weakness, and costiveness ; they increase the appetite, give tone to the stomach, expel faint torpid feelings and headache, occasioned by cankered stomach, chronic debility, or a sudden cold. These bitters are harmless and may be used by young or old ; good to strengthen weak patients, &c.

Eye water. Take of white pond lilly root, marsh rosemary root, witch-hazel, and red raspberry leaves, make a strong tea of all or either of them, add one third as much of No. 6, and a little of No. 2. Bathe the eyes four or five times a day ; keep your eyes at the same time as much as possible from the external air, and immerse your face every morning in cold water, shutting and opening your eyes till well washed.

Volatile salts. Take of crude sal ammoniac one ounce, pearl ash two ounces ; pound the ingredients separate, mix them well together, bottle close for use ; damp it with spirits or essence ; this applied to the nose is good for faintings, and to remove pain in the head.

Steaming. Steaming is of the utmost importance in cases of suspended animation, such as drowned persons, and in many cases of spotted fever, when they fall apparently dead ; in this case place the body over a moderate steam, shielded by a blanket from the external air, till you can raise the internal heat so as to get the determining power to the surface, and as life gains, increase the steam as the patient can bear it ; if the patient be much distressed, give the more hot medicine ; as soon as an equilibrium takes place, the pain will cease. In all cases of this kind the difficulty can-

not be removed without the application of heat to the body, and it is more natural by steam than by any other means that can be made use of.

In cases of long standing where the patient has been run down with mercury, and left in a cold obstructed state, liable to rheumatism and other complaints of a similar nature, medicine is insufficient to effect a cure without steam, as nothing will remove mercury but heat. When a patient has been long under mercurial treatment, and while under the operation of the steam, when the heat is at the highest the face will swell in consequence of the poisonous vapor being condensed by the air, and the face being open to it. To relieve this put the patient in bed, with the head covered, and let him breathe a lively steam as hot as can be borne, from a steaming stone; the cloths being wet with water and vinegar in which the stones are wrapped—this will throw out the poison in about fifteen or twenty minutes after the swelled part sweats freely, and then the swelling will abate. For the ague in the face, or for toothache, and when children are stuffed in the lungs, the face may be steamed as above directed. In cases of pain in the legs, hips, back, or any other part, or a stitch of wind in the side, stomach or shoulder,—if a steaming stone is applied to the part pained, it will generally give relief.

In all cases of falls or bruises, steaming is almost infallible, and is much better than bleeding; if the advantages of steaming were generally known, in cases of falls bruises, and the like, bleeding would seldom be resorted to in such cases.—Before and after steaming, give the hottest medicine you have and keep up the perspiration free until the pain and soreness abate. In all cases where the heat of the body is so far exhausted as not to be rekindled by the use of medicine, as in chills, stupor, suspended animation, &c. heat by steam is more natural in producing perspiration than any dry heat which can be applied to the body in any other manner. The use of steaming is to apply heat to the body where it is deficient, and to clear off obstructions caused by cold, which the operation of medicine will not raise heat enough to do; the natural heat of the body must be raised as far above the natural state, as by disease it has fallen below it, and this must be repeated until the digestive powers are restored; then the food received into the stomach will maintain that heat on which life depends.

When steamed, the patient should stand or sit over the steam bath divested of his clothes, and shielded from the air by a blanket being pinned around his neck. Previous to his going over the bath, he should take one or two doses of the composition tea, with the addition of either No. 2, or 6, or both of them. While steaming in all cases the internal heat must be higher than the external, by repeating the above named doses—this prevents faintness, and renders the operation both safe and easy to the patient. Should faintness take place at any time while under the operation of the steam, after giving a sufficient quantity of hot medicine, the external heat must be let down by washing the patient's face with a little cold vinegar; should this be ineffectual, apply a little to the stomach, and the faintness will subside. The patient may continue over the steam from fifteen to thirty minutes, or as the case may require. The steam may be raised or let down at pleasure, by immersing small hot stones in the water over which the patient is placed; the water should first be made boiling hot, and the steam raised high enough to bring on a free perspiration with the help of the hot medicine, but not so high as to burn the patient. When done steaming, the patient should be lightly washed off with cold spirits, vinegar, or cold water; this closes the pores of the skin, prevents the danger of taking cold, and refreshes the patient very much. When the above named hot medicines cannot be had, others may be substituted in their places, such as red pepper, summer savory, and the like.

The way a steaming stone is prepared, is by heating a stone in the fire till nearly or quite red hot; then immerse the stone in cold water, till it quits hissing; take it out and wrap it in three or four folds of linen cloth, wrung out of the water, and one fold of a dry flannel cloth wrapped over the whole. The stone should be about the size of a man's head, and while one or more is applied to the patient, more may be heating if necessary.

A REGULAR COURSE OF MEDICINE.

First, give No. 2, and No. 6, in a tea of the composition powder, or in a tea of No. 3, then steam; after steaming, the patient must be put in bed with a steaming stone at his feet, and take a dose or two more of the hot medicine; then take the emetic No. 1, and repeat as occasion may require to cleanse the stomach; this will also assist in keeping up the

perspiration. When the emetic is done operating, give an injection according to directions, (see directions.) When there are nervous symptoms, or nervous affections, or spasms, add half a tea-spoonful of nerve powder to each dose, and into the injection. In the intermediate times of vomiting, the patient should drink milk porridge, chicken broth, or the like.

This operation will be sufficient for once, and may be repeated every second, third, or fourth day, or as the case may require. In violent cases where immediate relief is needed, No. 1, 2, 3, and 6, may be given together. No. 2, and No. 6, and the composition, are given to raise the internal heat, and bring on a perspiration; the steam is applied to open the pores and aid on the perspiration. No. 3 is given to remove the canker, and heal the stomach and bowels.

In slight attacks of disease a whole course of medicine will not be necessary; your judgment must be used, what medicine to give, and how much. In all cases of long standing and severe attacks, a whole course of medicine will be necessary, and must be repeated as the case may require.

Rejected medicine and practice. The use of those herbs and minerals which possess a poisonous nature, such as garden hemlock, (cicuta,) laurel, swamp dogwood, ivy, arsenic, antimony, calomel, opium, and the practice of bleeding, blistering, giving many drastic purges, &c. are rejected by Dr. Thomson.

ERRATA

- Page 9 for Remittent read Intermittent.
 " 39 " Varicella read Varicella.
 " 110 " Hamorrhage, read Hemorrhage.
 " 112 " Custic alkali, read Caustic alkali.
 " 206 " Musk. Moschiferus, &c. is the caption to the section
 which follows it.
 " 208 " Cinnamomum, read Cinnamomum.
 " 209 " Silver Argentum, read Silver, (Argentum.)
 " 210 " Iron Ferrum, read Iron, (Ferrum.)
 " 336 " 1823, read 1832.
 " 375 " Lohe—canes—mammary, read lobe—comes—mammary.
 " 335 " Esophagus, read Oesophagus,
 " 459 " Lithomy, read Lithotomy.
 " 117 " Apricana, read Africana.





JUN 26 1961



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